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ABSTRACT

This study examined faculty research in California presently under way; analyzed the research in terms of the stipulation in the Donahoe Act regarding functions of segments of California higher education; made proposals for implementing recommendations resulting from the study. Material for the study was drawn from documents made available by numerous state offices, national higher education sources, visits with officials and faculty of the State Colleges and University, meetings with members of the Governor's staff and correspondence with educators of national prominence. General recommendations include more state support for: (1) faculty research, (2) research into the connection between the discovery of knowledge and meaningful teaching, and (3) a broader definition of the Donahoe Act. Encouragement should be given to (1) maintaining the present 3 divisions of California higher education, (2) permitting greater flexibility of the individual state colleges in the administration of their instructional budgets, and (3) involving qualified State College and University faculty members in doctoral teaching and research supervision (joint doctoral program). Specific recommendations are delineated further. The report contains over 150 pages of appended information and concludes with a bibliography. (Author/NF)

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FACULTY RESEARCH IN THE CALIFORNIA STATE COLLEGES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A Report Prepared by
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FACULTY RESEARCH IN THE CALIFORNIA STATE COLLEGES

Report of a Research Study
June 1 - August 15, 1968

I. Introduction.

A. The assignment.

On 1 June 1968 Claremont University Center was directed by contract with the Coordinating Council for Higher Education to make a study of the role and function of faculty research in the California State Colleges. It was stipulated that the report should be submitted to the Executive Director by 15 August 1968.

It was agreed that the study would concentrate on three topics:

1. Faculty research presently going on;
2. An anlysis of research in terms of the statement of the Donahoe Act regarding the functions of the segments of California higher education;
3. Proposals to implement and accomplish the determinations of (2) above.

Material for the study was drawn from documents made available by numerous state offices as well as national higher education sources (see Appendi visits with officials and faculty of the State Colleges and University (see Appendixes meetings with members of the Governor's staff; and from correspondence with educators of national prominence (see Appendix H).

Participants in the Claremont study team included three of

The Claremont Colleges presidents, the Dean of the Graduate School, two senior faculty members, the Director of Institutional Research, and several graduate assistants.

Faculty Research in the California State Colleges

The Donahoe Higher Education Act states that, "...the University of California is the primary state-supported academic agency for research," (53 p. 199) and that "The primary function of the state colleges is the provision of instruction for undergraduate students and graduate students, through the master's degree, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession....Faculty research is authorized to the extent that it is consistent with the primary function of the state colleges and the facilities provided for that function." (53 p. 201)

The Claremont study team interpreted its mission as requiring that the study be conducted within the present provisions of the Donahoe Act -- that is, the differentiation of functions of the segments of California higher education will continue and that the primary research agency will continue to be the University of California.

The problem of the study became, then, to examine what a State College system does and can achieve in faculty research given this limitation.

It was further assumed that it was necessary to examine in some depth the limitations, actualities, and possibilities of a concept of faculty research "consistent with the primary functions of the State Colleges," or in other words, faculty research oriented to teaching. Throughout the study it became clear that such an interpretation of faculty research is considered by many in higher education to be a difficult and in many ways, an artificial distinction. The analysis of the place of research in college teaching as seen by a significant number of college and university educators is developed in this report in Appendixes A, B, C and I.

This statement summarizes the information obtained; the more detailed descriptive and statistical data can be found in the appendixes.

B. The status of the State Colleges in California.

In seeking to study faculty research at the California State Colleges, the survey team was aware that its problem related directly to the differentiation of functions of the segments of California higher education. It became clear that faculty research, its definition and support are related to a basic problem: The status of the California State Colleges.

The status of a college or college system is not a pertinent subject for a research study if it involves only such matters as social reputation or alleged public prestige. Such things can be debated endlessly and are usually quite subject to the personal knowledge and opinion of individuals. When, on the other hand, status bears a direct relation to the recruitment and retention of faculty or to the attraction of outside financial support, it cannot help but be seen as important to the successful functioning of the institution.

The study team endeavored to stay with the assigned topic of faculty research, its role and function. It would be less than candid not to admit, however, that this report has been prepared on the basis of many volunteered discussions concerning the status problem of the California State Colleges. It would likewise be unreal not to express interest in the possibility that this report may be useful in this larger regard.

C. Mission of the California State Colleges with Some University Comparisons.

The eighteen California State Colleges exist to provide bachelor's degrees in the liberal arts and sciences and a limited number of applied and technical fields; and master's degrees primarily in academic disciplines.

In 1965-66 the State Colleges conferred 21,533 bachelor's degrees and 3,795 master's degrees. These represented respectively 52% and 32% of all degrees awarded by higher institutions of learning in California that year, including independent institutions.(24 p. 19) The comparable percentages for the University of California in that same year were 24% (bachelor's) and 35% (master's).(24 p. 19)

From 1958-59 until 1965-66 the State Colleges' share of master's degrees increased from 27% of the entire state's total to 32%. At the same time, the State University's percentage increased from 31% to 35%. (24 p. 19) These gains are countered by a loss in the percentage of master's degrees conferred during that time by the independent institutions of California.

Bachelor's degrees awarded by the State Colleges as a percentage of all degrees awarded in the State have markedly increased from 43% in 1958 to 52% in 1966. During the same period the proportion of B.A. degrees awarded by all branches of the University of California decreased from 28% in 1958-59 to 24% in 1965-66. (24 p. 19)

II. A brief picture of faculty research accomplished or in progress in the California State Colleges.

It would be difficult and perhaps meaningless to detail the various individual and group projects being carried on by the faculties of the California State Colleges. What can be pointed out, however, are the various areas of proven strength, their sources of support, and the particular type of assistance that is needed.

A discussion of current research should be prefaced by two generalizations:

(1) Research in certain areas (particularly in the sciences and to a lesser extent the social sciences) is more apt to dominate because sources of outside support are more available. In other words, the

availability of funds is in itself an incentive to research in some fields and not in others. By the same token the sum total of grants reported for research does not give a full story of faculty productivity, much of which proceeds year in and year out with little or no outside funds. A search of published titles, which time did not permit, would undoubtedly tell more of the story. But representative evidence of such faculty research in its more varied dimensions can be seen in the computer print of faculty activities at California State College at Fullerton and the printed annual reports on research at California State College at Los Angeles.(3)

(2) Research in the arts, humanities, and some of the social sciences is less in evidence because it is more difficult to categorize and to report in a meaningful manner. Consequently, a general statement that the California State Colleges appear to have a greater and better proven research potential in the biological and physical sciences or in Education reflects in large measure the amount of dollar support for those areas rather than the numbers of faculty engaged or the amount of time and effort expended.

There is some evidence to show that the State Colleges have not retained their research strength in many of the same areas over the past decade but have increased the magnitude of support for them. The Shepherd report to the members of the State College Research Committee. 26 June 1961, Research in the State Colleges, 1960-61, gives a conservative figure of $2,394,551 for 137 faculty research projects during the period 1958-63./(80 p. 4) In 1965-66 alone, expenditures for faculty research reached $3,142,299 and in the three-year period from 1 July 1964 to 30 June 1967, grants awarded from one agency only for basic research totaled $2,285,400 -- an amount almost identical with the five-year total for all grants in 1958-63.

The Shepherd report states that 34.6% of all grants in the period 1958-63 were in the area of the sciences -- sciences and natural resources; 29.7% were in Education, and 26.5% were in the Social Sciences. (80 p. The Chancellor's report, Faculty Research in The California State Colleges, 1965-66, indicates that the sciences and natural resources accounted for 48.6% of the funds expended for faculty research, Education accounts for 16.9%, the physical sciences and mathematics for 21.9%, and the social sciences including psychology for 18.5%./(54) Thus it would appear that, although all of the above categories may have improved their dollar position over the past decade, the sciences have increased substantially their relative position whereas Education and the social sciences have declined in proportion.

The spread of grants among the Colleges is somewhat better in the life sciences than in other areas. Funds were expended for faculty research in the biological and environmental sciences in 13 colleges in 1965-66 and grants for basic research from NSF were made to 13 colleges in the period from 1965-67. (See Appendix F, Table I) In physical sciences and mathematics, faculty in 12 colleges received grant funds in 1965-66 counting all sources but only 6 received awards from NSF for basic research in the period 1965-67. Nine colleges expended funds on faculty research in the social sciences in 1965-66 and five were supported by NSF grants in the three-year period 1965-67. Education research was spread over 10 colleges in 1965-66, but two of these received faculty grants of less than $400.

Basic research supported by the National Science Foundation for fiscal 1965 through 1967 shows that, of the total grants awarded to the California State Colleges ($2,285,400), 71.7% ($1,639,700) were in the life sciences, 17.4% ($398,400) in the physical sciences, and 8.9% ($202,300) in the social sciences (see Appendix F, Table I), and 2.0% ($45,000) in Engineering.

Areas of greatest research strength in the sciences, based on competitive awards for basic research from the National Science Foundation, lie in the fields of psychobiology (principally at San Diego, Hayward, and San Francisco), environmental biology (San Fernando Valley, San Jose, San Diego, Los Angeles, and Fresno), systematic biology (San Diego, Chico, Sacramento, and Cal State Poly), genetic biology (San Diego), metabolic biology (Los Angeles), and regulatory biology (Long Beach, San Francisco, and Los Angeles). Chemistry shows considerable and increasing strength particularly at San Diego, Los Angeles, San Jose, and Long Beach. San Jose has exceptional strength in the atmospheric sciences, and the most notable work in astronomy is at San Diego State. In the social sciences, particular attention might be drawn to research undertaken in anthropology (Los Angeles) and in social sciences (San Diego). Strength in engineering research is heavily weighted toward San Jose, although some is carried on at Fresno and other colleges.

Basic research grants from the National Science Foundation have a particular value to the State Colleges in that they provide additional funds through the partial matching, Institutional Base Grants. For fiscal years 1965 through 1967, for example, these totaled $604,340 distributed among 14 colleges and provided support funds to the college foundations for current research and seed money for additional faculty projects (Appendix F, Table II). For the three-year period the amounts to any one college varied from a maximum of $129,335 (San Diego) to a low of $2,000 (Sonoma) (Appendix F, Table II).

While the lack of doctoral programs may hamper the development of some basic programs, past history indicates that talented faculty wishing to conduct worthwhile investigations can and do secure substantial extra-mural support. If the State Colleges can retain good research scholars, add others, and provide undergraduate and master's student participation where required, the faculties should have little difficulty in continuing to attract outside support.

In the face of research fund allocations to the University of California, the preceding may sound over-optimistic. Compared to the University, the amount and number of research grants is small indeed. The National Science Foundation, which is the largest basic research support source for the California State Colleges and is apt to remain so, made 94 grants to the State Colleges for a cumulative total of $2,285,400 for fiscal years 1965, 1966 and 1967 as opposed to 830 awards for a total of $41,599,332 to the University for the same period (Appendix F, Table III). In fiscal 1967, the University's share of $14,202,520 (exclusive of grants to the Scripps laboratory and other similar research activities) was 50% of the total awarded to all California Colleges and Universities, private and public. The State Colleges' share of $895,050 on the other hand, represented but 3%.

Since agencies other than the National Science Foundation support fewer fields of basic research and spread across fewer colleges, their contribution to the total picture is apt to vary more from year to year and depend, to a greater degree, on a relatively small number of awards. The Department of Health, Education, and Welfare ranked second as an awarding agency to the State Colleges in 1965-66 with faculty research grants of $825,922 to nine colleges (predominantly to San Francisco and San Jose), and the National Institutes of Health ranked third with a total of $459,643 (70% to San Diego) to five colleges. Other principal granting agencies included: The State of California ($227,392) to seven colleges ($155,724 to San Francisco); the Atomic Energy Commission ($88,144) to 2 colleges (95% to San Diego); the Department of the Interior ($87,441) to 7 colleges; the Department of Navy ($83,507) to 6 colleges, and the Department of the Army ($151,430) to four. As granting agencies, the State College Foundations contributed $37,312 to five colleges in 1965-66. Institutional base grants from the NSF for the same year totaled $242,213 to 13 colleges.

Although grants for faculty research from the above agencies are encouraging, they do not, except for those from H.E.W. and N.I.H., have as great an applicability to a variety of research interests as do those from the National Science Foundation and none are apt to adequately support the arts and humanities.

Another promising development, although of a limited nature, is the Moss Landing Consortium. Projects of this magnitude take careful planning on the part of the several institutions involved, as well as adequate funding and a commitment of continued support on the part of the State.

A third development is the joint research project between institutions that are relatively proximate; e.g., the joint engineering research program with San Jose State and University of California at Berkeley. These may have the tendency to draw faculty away from the State College campus and might thus be questioned in view of the restrictive statement of the Donahoe act regarding "research oriented to the primary function" of the State College, i.e. teaching.

III. Present California State College limitations to faculty research.

A. The situation summarized.

Section II indicates the extent of faculty scholarly production now going on in the State Colleges. While it was impracticable to gather full comprehensive details, the report as it stands reflects in our judgment, a commendable and steadily improving accomplishment.

At the same time the bulk of the study team's findings is on the side of limitations and inadequacies in faculty research output. The impact of these findings was felt in expressions of frustration by State College administrators and leading faculty members on the several College campuses. Replies to questionnaires sent to each of the Colleges were consistent with those elicited during direct interviews on the six campuses selected for visits by the Claremont interviewers. These are reported in Appendixes C and D.

In objective terms, the California State Colleges are suffering from a growing shortage of faculty members. Each year the fall term has commenced with several hundred unfilled vacancies. Vacancies increasingly are being filled late in the spring or even summer. It is generally conceded that such late appointees are professionally less mature than appointees received earlier in the year. State College faculty turnover meanwhile in the four academic years preceding 1968 increased from 8.8% to 10.6%, which is nearly twice the turnover of institutions chosen for comparison purposes. (86 p. 1)

The percentage of holders of the Ph.D. or equivalent among new appointments has decreased in the preceding six years from nearly 50% to only slightly over 1/3. (86 p. 1)

There are many factors involved in faculty supply difficulties. (63 pp. During the present study, the most pertinent datum reported is that in a recent academic year (1966-67), 198 letters from prospective appointees rejecting offers of faculty appointment mentioned the limited opportunity for research at the State Colleges. (86 p. 1) More often mentioned, to be sure, was the inadequate salary level and the teaching load of twelve credit hours. All these factors, however, tend to interconnect in the prospective appointee's mind. The image of a relatively low-salary, high-teaching-load college superimposes upon a college where research is lightly stressed and even more lightly supported.

In the ensuing discussion are reported the topics which occurred in one form or another most frequently in conversations and correspondence held with State College officials and faculty members. For the report of actual testimony, see Appendixes C and D.

B. Factors in the limitation of State College faculty research.

1. State funds for higher education and teaching load.

Two factors are held to be significant in limiting the State College professor's time for research: The twelve-credit-hour teaching load; and the lack of provision for teaching assistants, technical aids, secretarial and clerical help, supplies, and equipment. It is common, for example, for faculty secretaries in the State Colleges to be available to faculty at a ratio of one to 15 or even lower. State College faculty are aware that the dollar value of academic support of all kinds to University faculty averages about $5,000 per year per man. Equivalent figures for State College faculty, which never have been made public, would be considerably less than this amount. (It should be pointed out that State College budgeting and University budgeting proceed under different systems which make direct comparisons very difficult.)

Faculty and administrators point to a teaching load of twelve hours and a requirement of four separate courses with the equivalent of another three-hour course added for committee and administrative work. These strictures are called unrealistic and outmoded. The situation is one of two factors cited most often as stifling to research production. Especially irksome to State College administrators are the reported central restrictions on the allocation of the fifteen hours of committed faculty time. Administrators point out that if they had more flexibility in handling their own academic scheduling they could accomplish many things to free certain faculty for scholarly work.

2. Research and Sabbatical Leaves.

A limited program of paid semester leaves of absence has been made available to State College faculty. This has been augmented in recent years by a legislative appropriation now just over $300,000 per year to support State College faculty research largely through these means.

The limited funds available for State College research leaves -- widely and somewhat bitterly contrasted with a total exceeding $30,000,000 made available to the University of California for annual research support -- have had the effect of whetting faculty desires but frustrating many, since for example, only about a fifth of those who applied in 1965-66 were granted leaves (74 p. 10). The number granted in a recent year represented one leave for every 30 faculty. One group of faculty alluded to a recent survey showing that, on the average, a State College professor might expect a sabbatical leave every 17 years. The funds granted, in other words, have not been sufficient to have a leavening effect on faculty research interests.

State College administrators and faculty members have asked to use the State appropriation for special research leaves to permit part-time release of faculty during regular teaching semesters in order for them to pursue research projects and to spread such benefits among more faculty than would be reached through a smaller number of full-time leaves. Thus far this permission has not been granted by State authority. The impression was gained that legislative authorities believe such partial released time might weaken the faculty's dedication to teaching during their remaining hours assigned for instruction.

3. Other funds for the support of research.

The principal support for State College research has been obtained by means of State College Foundations which are currently established in 14 of the State Colleges. The Foundations act as recipients for grants from state and federal government agencies and from private sources. Monies in these grants for the compensation of indirect costs and administrative expenses have been used in various ways as seed money for enlarging faculty research capability. Again, however, various reports indicate that some administrators and legislators consider that such so-called overhead paid to the State College Foundations should go into the general funds of the College, or to the Chancellor's Office, or should even be considered a credit against the State's appropriation for that particular institution in the ensuing year.

4. Interpretations of "research oriented to teaching."

Considerable effort was launched by the study team to explore attitudes regarding the Donahoe Act's specification of State College faculty research that shall be oriented to the "primary function" of the State College, that is, teaching.

In recent years annual sums of from $74,000 to $100,000 were authorized to reward good teaching and to stimulate faculty publication. Although the award money has been spent in individual $500 grants, the amounts for publication reported to this date were spent in only one year, and to the extent then of only 50%, in that faculty were reported as being reluctant to publish material which they considered essentially classroom notes, syllabi, etc. As Legislative Analyst Alan Post indicated, in fiscal years 1965 to 1967, $151,500 was allocated for faculty publication but in only one year, 1966, were publication expenditures made, for a total amount of $20,875.

This suggests that the prevailing administrative and faculty reponse to the concept of "teaching-oriented research" has been that the distinction is artificial and inhibiting to faculty creativity. Numerous people volunteered that the distinction is a "cultural lag" dating back to the origin of the State Colleges as normal schools and that the sooner it is forgotten, the sooner these colleges will move into full status as centers of academic excellence.

The analysis of a research function which supports a professor's teaching in the broadest sense did nevertheless impress the study team as a legitimate question, and it is discussed in Section IV of this report. It can be recorded meanwhile that correspondence from twenty prominent educators about the country supported the proposition that research is indeed a necessary part of the connections between discovery and knowledge, and the teaching function; and that a group of institutions such as the California State Colleges could fulfill a useful leadership role by emphasizing these relationships (see Appendix H).

5. The joint doctoral program.

In 1963, the Legislature appropriated funds for the development of joint doctoral programs between University and the State Colleges in disciplines and institutions where it might be appropriately undertaken. State College faculty members would, under such joint programs, share the teaching and supervision of doctoral candidates who would eventually receive their degrees jointly from the University and the State College system. (65 pp. 1-7 and 87 pp. 1-7) At this writing, only one such degree has been awarded and only three programs are in existence -- one in chemistry between San Diego State College and the University of California, San Diego, and two in special education between San Francisco State College and the University of California, Berkeley, and between California State College, Los Angeles, and the University of California, Los Angeles. Others are in various stages of development, but State College attitudes are in part pessimistic. (see Appendix D) Some representatives testified that both University faculty and State College faculty have little if any interest in developing joint doctoral programs. This attitude is in contrast to the enthusiasm reported by the supervisory board for the joint doctorate and by one University Chancellor in particular.

Without access to doctoral students even through joint programs, State College faculty feel handicapped in submitting proposals for research grants from government agencies such as the National Science

Foundation. Their frustrations are increased by the belief expressed among certain State Colleges as to their academic readiness to mount Ph.D. programs of their own in certain well-staffed and equipped fields.

The Claremont study team had no assignment to explore the case for Ph.D. programs in the State Colleges, something which would contradict the statutory differentiation of the public segments in California higher education. Although it is not pertinent to our specific survey question, it did recur frequently enough in discussions concerning State College faculty quality, function, and retention that it seems proper to suggest that a study might be made both of faculty strength and demand justifying additional Ph.D. programs in California conducted by selected departments in certain California State Colleges. The area most frequently mentioned is education, which might be combined in various ways with research in the teaching of a selected discipline.

6. Conclusion: Attitudes toward the State College research function.

The study team encountered throughout its surveys a considerable breadth and degree of negativism toward both actualities and early possibilities of faculty research in the State Colleges. Despite the solid accomplishments noted in Section II, State College people evidently believe they are at a formidable disadvantage in efforts to increase and improve in this respect. At present too few faculty members show a disposition to press for a change in conditions. It was generally stated that salary increases, and also promotions in rank, bear little relation to research production or the lack of it. Representatives stated that salary increments have tended to be automatic among faculty. Promotions in rank may in certain departments and on certain campuses be significantly dependent on published research, but are widely viewed as the outcome of conventional performance, not to mention faculty politics. There is widespread discouragement over what is regarded as scant response from the Legislature toward the need for support of State College faculty for a wide variety of professional pursuits, including research. The feeling was expressed that the Legislature regards faculty desires for research leaves as a kind of pressure for more paid vacations. There is a sincere belief that legislators have not been given adequate knowledge of the function of research in the intellectual life of a college teacher. One professor stated, "One might well conclude from the language of the Master Plan that research somehow represents a scarce commodity and that we are in danger of exhausting our supply of it."

IV. Research versus Teaching: A Review of the Debate and Suggestive Links for the State College System.

A. The Case Against the Research Orientation.

The national concern about the conversion of major educational institutions to "research factories" because of substantial Federal funding has relevance to the State College system. The major themes critical of research in the Congressional Hearings, the journals and the press follow (see Appendix A):

We experience today the unprecedented expansion of the college-age population (with the related need for more college teachers) and unprecedented opportunities for faculty to minimize teaching obligations. This happens, ironically, because teacher-scarcity gives teachers leverage to insist on smaller teaching loads and because many teachers now have such alternative means of support as outside research funds. While the rewards to the community provided by research are not denied, the diversion of talent from teaching compounds the problem of recruiting adequate instructional staff. The quid pro quo for the benefits of research -- often realized in the distant future -- is the compounding of the scarcity of competent instructional staff in the immediate present.

The diversion of time to research by distinguished faculty members compels contrived instructional arrangements that are far from efficient or satisfying from the student viewpoint. Faculty members evade out-of-class contact with students, senior faculty members give fewer lectures to larger classes and graduate students are expected to simulate senior faculty skills. However, graduate students have dissertation responsibilities and are often even more careful in guarding their time for such research than the senior faculty. Students soon realize that instructional duties are unwelcomed interruptions in the staff's "more important" work. And the staff quickly realizes that with sufficient entrepreneurship in securing research funds, instructional obligations can be reduced to a minimum.

The second dimension of this problem reflects student discontent with the faculty focus on research. Federal funding has been largely linked to the development and refinement of nuclear, aerospace and military hardware. The moral atmosphere of campus life is, in this view, contaminated by the seduction of intellectual energies for such research. Students are critical, then, not just because the faculty member is preoccupied in his lab, but because of what the faculty member is doing in his lab.

Access to outside funding for faculty research has also created "have" and "have-not" departments within institutions, a two-class system with obvious morale implications for the faculty. As the proportion of faculty support from research funding increases, the uncertain flow of such support introduces an ambiguous parameter for academic planning. As budget constraints for the state colleges become more severe, the faculty member, with a record of success in securing outside funding, enjoys windfalls of bargaining power. He may become more important to the institution than the institution is to him. When the "star" or "celebrity" system is embraced by college administrations as a matter of financial expediency, uniform standards for defining obligations of the faculty to students collapse. In this pragmatic and opportunistic world, the enhancement of institutional prestige may well involve the erosion of both student and faculty morale.

The usual argument that research enlivens the teaching experience cannot be readily reconciled with the following empirical evidence. In the array of institutions with success in securing graduate fellowships (Woodrow Wilson, NDEA and NSF awards) on the basis of the credentials of graduating seniors, the small liberal arts colleges score successes out of all proportion to almost all major research-oriented universities (see Appendix A and bibliographic sources 33 and 34).

B. The Case for Research (see Appendix B).

The proponents for research complain that the popular protests against research are based on simplistic explanations for student unrest, and perhaps even encouraged by parents bewildered with the failure of their children to survive the increasingly rigorous demands of top-rated institutions. But why should research be jetisoned because of intensified competition for excellence?

The quality of life we now enjoy is largely explained by the investments in research a generation ago. Economic growth is as much a function of the quality of labor (advanced through education) as it is determined by the quantity of labor. It is as much a function of the quality of capital (advanced through technology) as it is determined by the quantity of capital. Can we do less for posterity than provide it with advantages equivalent to our own heritage?

Research has acquired an unwarranted symbolic significance in representing the single cause for faculty isolation or detachment from the academic community, in explaining alleged faculty indifference (if not hostility) to students. Even if this were partially true, it is quaint to think one can dichotomize research into activities which advance, from those which do not advance, both the instructional and learning experience. The faculty member who abandons research also abandons his students to obsolete information. The quality of the educational experience can hardly be enhanced by admonitions that stress (even if inadvertently) that the distributional function (viz., teaching), is more important than the production function (viz., research). Research preserves the freshness and currency of the lecture material. A learned faculty must be a learning faculty; an inspiring teacher must first be an inspired teacher.

The weight of evidence shows clearly that the most highly-rated scholars are those faculty members involved in research. Such ratings come from two sources: the evaluations of students exposed to the faculty member in the classroom situation, and the evaluation of peers, exposed to the faculty member's research capabilities as reflected in published works.

The fact that access to outside funding for faculty research has created have and have not departments does not mean that well-endowed departments should refuse support when it is available. The problem seems to be the lack of enough support in some areas. Furthermore, research in the humanities and some social sciences does not require nearly the financial support that research in the natural sciences does. Release time and travel funds frequently are vital to research progress in the humanities and social sciences.

Verbal communication is, of course, only one means of communicating wisdom. It would be ironic if public policies that require a full commitment to verbal communication should frustrate the communication of such wisdom to the much wider forum through the printed word.

Even if one contests the value structure of professions that measure intellectual substance by the quality of faculty research, that value structure is not likely to be overturned by critical affirmations alone. But if, as a matter of public policy, teaching is held to be as important as -- if not more important -- than research, by what logic should the reward system for teaching State College faculty be less generous than it is in the research University faculty?

The consequence of the present arrangement is not just the tacit discouragement of research in State Colleges, but the destruction of the creative potential that a more positive posture would allow.

Whether we like it or not, successful research is the most important determinant of professional status. Young faculty recruited to a State College system that only tolerates research can only be critical of the value structure of that system and the compromise he has made of a professional expectation. The excitement generated by faculty in its search for new information has contagious and stimulating consequence for students. By contrast, faculty limiting their work to the rearrangement of old materials soon weary with the monotonous repetition of stale material. Their students, of course, suffer much more than they do.

C. Reconciling Research and Teaching in the State Colleges:

It is unfortunate that the State Colleges, the largest higher education system in the world, operate in the shadow of legislative provisions which encourage, however inadvertently, a sense of mediocrity. As emphasized above, faculty, trained to appreciate the significance of research, can hardly expect to be encouraged by policies offering little -- by word or by action -- to legitimize research. Indeed, youthful faculty joining the State College system can only react to the "teaching-only" obligation with some measure of disbelief. The diffidence to research embodied in the Donahoe Act may arouse -- as is certainly the case for many State College faculty members -- a competitive response, as reflected by the determination to undertake research on an overload basis. But for others unfortunately, it may erode the delicate fabric of pride and self-confidence in one's professional expertise. And tragically that negative psychology may infect the student population as well, with the mutual interaction or closed-loop system reinforcing negative attitudes on all sides.

The task, then, is to redefine the research functions for the State College faculty so that we can reduce the second class status (logically founded or not) inherent in the "teaching-only" orientation of the Donahoe Act.

This can be accomplished, first by a positive affirmation that high-quality research is expected of the state college faculty.

We admit, of course, that differentials of performance and reputations of institutions cannot be avoided, for these are inherent in both personal and institutional life. But we assert that the opportunity for distinction must be more equally shared by all faculty and students in all higher education segments. In making explicit the opportunity for excellence, we accept the rationale for the three-segment system. But the student's journey in higher education must not be prejudiced by facilities and an academic atmosphere that largely determine his advance before the journey begins. Differentiation of functions between the State Colleges and the University is possible, but it is not proper to attempt differentiation of the quality of the programs for these two segments.

In attempting to determine what research is appropriate for the State Colleges and by comparison what is appropriate for the University, the study team felt that any such distinctions tended to be restrictive and not meaningful. Rather, in the next section, certain areas are identified in which it would be especially appropriate for the State Colleges to assume leadership.

V. Conclusions and Recommendations.

A. General conclusions.

1. The function of faculty research in the California State Colleges requires both a broader definition than the Donahoe Act provides and greater tangible support from the State. Improvements in both definition and support are basic to the academic strengthening of the colleges. The present limitations are exerting a depressing influence upon faculty recruitment, retention, and performance, with bad effects on student and institutional morale.

On the assumption that "research" can be more broadly defined without doing violence to the differentiation of functions between the University and the State Colleges, it is our belief that research should be more than "authorized" among State College faculty as the Donahoe Act now states. It should manifestly be encouraged.

The members of the study team find confirmation throughout higher education in California and the United States of the principle that a professor's research properly conceived is an integral part of his larger function as a teacher. The involvement of students in both the process and the products of his research constitutes one of the best elements of teaching. It is not necessary for the professor and indeed it may be inimical for him to plunge so deeply into research production and publication that his teaching attentions are lessened. Little evidence of the negative kind of research preoccupation was identified by the study team in the State Colleges.

The restrictive definition for State College research in the Donahoe Act, plus the limited nature of research aid made available to faculty have been reflected in outside attitudes. State College faculty members report that they are held in University circles to be of mediocre competence and that it is directly implied that any widespread demands on their part for research aids would be presumptuous. The condition is deemed by the study team to be a serious factor in the California State College status problem. Changes toward correcting such attitudes are needed; and to whatever extent the attitudes might be warranted, and upgrading of faculty is called for.

2. Development of faculty research oriented to the primary function of undergraduate teaching is one reasonable expectanc for the State Colleges, provided once again the definition is not narrowly construed as permitting only research in pedagogy _per se_ such as audio-visual aids, educational measurement, etc. A broad band of opinion holds that research in the connections between knowledge discovery and teaching is one of our national frontiers. Imaginative leadership, spurred by strategic incentives, could put the State Colleges in the forefront of such broadly-based college research.

At the same time it will be necessary to tie any such developments with forthright administrative efforts to identify and reward creative teaching. Creative teachers could be encouraged along lines of research that enhance their ability to inspire students to learn. But if rewards via promotion and salary increments are restricted to professors who have long publication lists or who, even worse, merely sit out faculty seniority, the incentive power of research activity oriented to teaching will remain of little power.

The development of first-class faculty performance in the State Colleges and Junior Colleges, as at the University, will rest upon inspiring a love of teaching which naturally takes in the love of exploration, discovery, and communication. This in the broadest sense _is_ research. Every college teacher at whatever level improves in teaching as he makes the connections between discovery in his subject and the meaningful communication of that discovery to his students.

3. Although the question was not assigned, the Claremont study team remain of the opinion that the three-segment system of California higher education is basically sound and that its main features can be preserved despite many pressures. The issue of starting a few Ph.D. programs in selected disciplines at certain State Colleges is also peripheral to the present study yet obviously pertinent. Thorough research into Ph.D. supply and demand ought to precede any attempt to settle that question.

4. The study team recommends that attention be paid by the Legislature and the State College Board to permitting a greater degree of flexibility at the individual State Colleges in

the administration of their instructional budgets. Presidents and deans would be stimulated to lead innovations in teaching and research among venturesome departments and faculty members if they could feel less closely reined.

5. The joint doctoral program between University and State College faculties should be explicitly encouraged. At present it threatens to be a still-born plan. To involve qualified State College and University faculty members in doctoral teaching and research supervision would accomplish at least two important things: a) communication and growing professional respect between faculties; b) relief of pressures to inaugurate State College Ph.D. programs. At present the joint doctoral program, to change the figure of speech, is such a small carrot held so far in front of State College faculty members that its incentive savor is negligible. The situation will not change unless definite administrative and (probably) financial measures are taken.

B. Specific recommendations.

1. Legislative funds should be authorized for the substantial increase of the program of special creative research leaves for State College faculty. The present $300,000 total is too small to make an inroad on the need. We recommend that it be substantially increased. The backlog of 2,500 sabbaticals for State College faculty points up yet another area where the expected and the actual experiences are quite different. Just as some small percentage of faculty do not wish to take sabbatical leaves, there will be those who will not apply for leaves for

creative research. For both of these programs we recommend no dollar amount for funding but that funding be increased to keep pace with the demand. This does not mean that all sabbatical and creative leave requests should be granted automatically. It simply suggests a shift of emphasis to having the number of leaves granted determined by the excellence of the proposal rather than the limitation of funds. The normal procedures of application, screening by peer committees, and administrative approval should continue. Reports of accomplishment following the leave period should be formally expected. The consideration of partial released time for research projects should not be rejected out of hand.

2. Specific funds for academic aids to State College faculty should be inaugurated in some fair proportion to similar funds now available to University faculty. The latter may now expect various kinds of academic support (administrative, clerical, equipment, assistants, etc.) totaling more than $5,000 per faculty member. Such aid obviously helps unburden time and increase research possibility. It is recognized that the budgetary system at the University is based on quite a different philosophy. The study team nevertheless suggests that through comparable procedures a State College faculty member ought to be able to count on more realistic provisions for secretarial assistance, office space, travel funds and for other areas of support which are not now adequately provided. There appears no realistic need or indeed any unrealistic demand for State College faculty research funds for expensive equipment or other major costs.

It is assumed that overhead payments, recovered indirect costs, and matching grants such as provided by the National Science Foundation should be permitted to remain with the respective State College Foundations. Such funds are needed for administration and development, for seed money in non-subsidized fields, and for supplementing existing grants. If and when State support for faculty research at the State Colleges is increased, there will be a continuing need for the State College Foundations. The faculty initiative that they reflect is something to be commended.

3. The twelve-hour teaching load, with three hours added for administrative and committee work, is a legislative requirement for the California State Colleges. To reduce it to nine hours would precipitate major costs to the State, and such recommendation the study team considers beyond its assigned scope. Pending any change, however, it is our belief that considerable time could be found for faculty research if individual college administrations were granted flexibility to determine the assignment of each fifteen-hour workload according to individual faculty talents. Thus some instructors might teach four courses but do no administrative or committee work, saving that time for research; other instructors might teach two large sections, handle turorials for advanced students, and build research efforts out of the latter; still other faculty might arrange work patterns along experimental lines of undergraduate involvement in research oriented to teaching and learning. It is recognized that such flexibility might raise questions of regularity in the Chancellor's Office. Yet it would give State College presidents a challenge

which seems well worth trying. The outside protection against extravagant use of faculty time would continue to be the modular base of so many student credit hours assigned to each faculty member. But the method of handling them might be widely varied.(1)

4. In order to encourage both the joint doctoral program with the University of California and new programs of research broadly oriented toward the improvement of teaching, it is recommended that consideration be given to the establishment of a special joint State College-University of California faculty research fund. Such a fund could be overseen by a combined administrative agency. Proposals for funding projects could be submitted to the agency and screened by committees of faculty peers representing both segments. Priorities might be granted to proposals concerned with regional problems, student participation, and interinstitutional collaboration. Such an agency could function somewhat like the National Science Foundation in Washington with its special programs of research grants and its faculty panels to screen them. Sufficient administrative controls could be supplied at any point in the procedure. But, the incentive and the morale factors inherent in such an agency for the encouragement of State College-University faculty collaboration strike us as decidedly promising. Conceivably it could have a dynamic role in stimulating the growth of outside funds for faculty research.

To fund such a joint research agency under the State might require a separate study. In view of the perennial pressures for money, it may not be inappropriate to suggest that the new agency and its grants be funded initially at least out of appropriations now being made for University faculty research activity, currently some $30 million per annum. An initial subvention of perhaps $2 million would seem reasonable.

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(1) Since the first draft of this report, information has been received that current regulations are being liberalized to permit Sta College administrators more flexibility in this regard. See also Appendix E.

5. In view of the frequent mention of State College library shortages for research purposes, it seems logical to recommend that a continuing review of State University library accessibility to State College faculty and students be made, with appropriate changes and improvements as may be indicated. We should make the most of regional strength in library and other information services, and maximize methods of making them available to students and faculty from all three segments. The nation is approaching a time when all higher education must face the impracticability of building multiple great competing libraries of mammoth size. The special collections simply are not available, and the wastage factor can be great. Duplication processes and electronic reproduction will eventually bring in a day when proximity to a major university library will be less important than remote access through various technological means.

6. The recent growth of area research centers available to two or more institutions has been noted with interest. The San Jose engineering center and the Moss Landing Consortium have been cited. Such developments recommend themselves provided they do not set up competing administrative units which eventually might vie by means of money and prestige for faculty time drawn away from the home campus. One of their best features is the communicati

the joint center can enhance between University and State College faculties. Such an improvement in communication remains near the top of the list of non-financial needs of the California Master Plan.

Respectfully submitted,

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September 21, 1968

APPENDIXES

A - Research and Teaching: The Case Against Research

B - Research and Teaching: The Case For Research

C - Perspectives of California State College Faculty and Administrative Staff: Part I

D - Perspectives of California State College Faculty and Administrative Staff: Part II

E - Special Adjustments of Individual Teaching Loads and Use of Instructional Resources

F - National Science Foundation Grants to State Colleges and The University, 1965, 1966, 1967

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H - Replies to President Benezet's Letter of July 9, 1968

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APPENDIX A - Research and Teaching: The Case *Against* Research

In this section we shall delineate the problems attributed to burgeoning research activity within institutions of higher learning. These considerations will be contrasted, in Appendix B with arguments that identify the positive contributions of research to the quality of the instructional process.

We can summarize the major categories of opinion about the negative impact of research in terms of:

(a) The new atmosphere on the campus attributed to the research diversions of faculty.

(b) The neglect, particularly of undergraduate students, following the preoccupation of faculty in research activity.

(c) Student unrest, reflecting not only the neglect of faculty teaching obligations but also student opposition to the service rendered by college campuses to military research, generously funded by the federal government.

(d) The concentration of support of research activities to a small number of favored institutions, a process that drains critical talent from the small liberal arts college.

(e) The paucity, certainly in relative terms if not in absolute terms, of the rewards for teaching activity. Related to this is the problem of measuring excellence of teaching technique in contrast with the more visible ways of measuring research success.

(f) The transcending significance of professional values for each discipline which uniformly give priority to research to the neglect of instructional expertise.

(g) The empirical evidence that those favored institutions have actually produced relatively less degree candidates with their more recent preoccupation with research, compounding the problem of meeting future instructional needs for the nation.

(h) The empirical evidence that favored institutions have failed to match their research performance with the outflow of undergraduates who secure equivalent recognition for their skills in terms of numbers of NDEA, Woodrow Wilson and NSF fellowships.

(i) The pragmatic and opportunistic posture of faculty who appreciate that the "road to riches" is via research rather than through attention to the teaching function, with a class system developing not only between the have and have-not institutions, but also between the have and have-not faculties within institutions. These realities compound problems of recruitment and sustaining faculty morale.

These themes do not necessarily exhaust the charges of mischief attributed to faculty preoccupation with research. In the analysis that follows, these several themes will be supported by the expressions of opinion by those who are, for the most part, within the academic community.

It is our contention that the appraisal made on the competitive and complementary relationship of research and teaching at the national level has obvious relevance to educational policy in the State of California. California not only represents an important segment of national educational activity, but also provides a vital laboratory to reveal the sharp contrasts in policy and sentiment on the research issue. The University of California system represents a splendid complex with a star-studded faculty and a superb record of research accomplishment. By way of contrast the 190,000 plus students in the State College segment are served by a faculty that has received, to date, only token financial support from the State for research activity. That faculty is "allowed" to undertake research that has explicity links with its primary teaching function.

(a) The Growth of Research and the Economic Rationale for Faculty Interest in Research:

To appreciate the buoyancy of growth of research activity, the present annual level of Federal government support represents an amount greater than the cumulative total of all Federal government expenditures for research and development during the entire interval from the American Revolution, through and including World War II.

This budget is not only large, but it has been growing at an unprecedented rate - for what in 1950 amounted to $1.2 billion has grown in the intervening 13 years by a factor of 10. That activity has been so momentous that

> we have, as one report puts it, "invented the art of systematic invention." Discovery is no longer left to chance but systematized and institutionalized. We see the "forced feeding" of the innovation process. (48 pp. 21-27) (*)

In 1965 President Johnson pointed out that of the $15 billion annual expenditure by the Federal government for research and development, 9 percent of this, or $1.3 billion, was spent in universities for research grants and contracts. In 1966, N.S.F. director, Dr. Haworth, estimated that the share going to the universities was about 12 percent of the federal total, or about $1.8 billion. But of this total, one third went to special research centers operated by universities under government contract, such as the Lincoln Laboratory (operated by MIT), the Los Alamos Laboratory (operated by the University of California), the Jet Propulsion Laboratory (operated by Cal Tech), and so on. Haworth estimated that about 7 percent of the total federal funds - about $1.1 billion - was spent for on-campus research.

The growth trend of R & D activity can be seen from the following data. From 1900 to the mid-sixties, those age 21 in the population increased by 1 percent per year. B.A. degrees awarded to men in all fields increased by 4 percent a year, and B.S. degrees in engineering increased at the rate of 5 percent per year. From a 1950 base, GNP has been increasing 5 percent per year, as have total federal budget expenditures. But since 1940, Federal expenditures for R & D activity have increased 20 percent annually. And from the

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(*) The numbers refer to the Bibliography following Appendix H.

base of the early fifties, university "basic research" expenditures have been increasing 17 percent per year, with the federal portion of such research increasing 20 percent per year. (35 pp. 850-52)

What is the relevance of this to higher education in California? California plays a leading position in the nation's research industry. For example, California leads all other states in the employment of scientists - 13,688, trailed by New York state with 11,095. Almost half of America's Nobel Prize men live in California. Of the 705 Americans who are members of the National Academy of Sciences, 158 live in California. This concentration of talent has been described as the "lightning rod" attracting research funds and sophisticated technological explorations to the state. Even so, California's success in attracting funds is out of proportion to the number of scientific personnel in the state. In the fiscal years 1961 to 1965, the state acquired 38.5 percent of all federal R & D funds. NASA spends approximately 45 percent of its R & D money in California (with R & D absorbing nine-tenths of NASA's $5 billion plus annual budget). If California were to secure R & D expenditures on the basis of its resident scientists, California would secure only about a third as much federal funding as it gets today. Clearly, the intellectual environment of California is attractive to this growth industry.

In terms of inter-state mobility, California has enjoyed the brain gain. This heavy investment in quality higher education in California obviously has been a critical factor enhancing technological and scientific development within the state. (34)

But the rapid expansion of government activity in the area of research and development is usually considered the prime cause of the alleged distortion of academic energy and values. As noted above such expenditures have been expanding at an annual rate of 17 percent; almost 70 percent of all research activity undertaken by institutions of higher learning draws support from Federal funds. Indeed, research support approximates about 15 percent of all support for institutions of higher learning. (33 p. 17)

We are confronted then, with the economic reality that research is a major force altering the character and focus of higher education. Because of the severity of budget constraints facing both public and private institutions, administrators have not pressed efforts to expand external research funding to ease their financial pressures. NSF director Haworth has testified that Federal funds support approximately one-third of all scientists and engineers in the country and about three-quarters of the scientists and engineers performing research at colleges and universities.

> Perhaps the most direct effect of expanded research programs has been to change the nature of the academic scientist's job; many of those who were a few years ago primarily teachers are now primarily research workers. As a result, teaching loads at universities receiving large Federal research and development funds

> have, in general, decreased. In the 100 institutions which accounted for more than 90 percent of the research and development for every hour of professional time spent on teaching of science and engineering there was more than one hour spent on research and development in these disciplines. (37 p. 61)

What is the consequence of this reality? National concern is reflected in the 1960 statement of the President's Science Advisory Committee:

> "...the university itself sometimes allows favored individuals to play no teaching role whatever as a means, perhaps, of attracting and keeping men of particularly outstanding reputation. The danger in such a practice is obvious, since it appears to suggest that the very best men deserve exemption from teaching. While with any individual such arrangement may be justified, it is of the first importance that universities - and scientists themselves - should sustain the value of teaching as well as research..." (39 p. 11)

This massive infusion of funds, is held largely responsible for the devaluation of the instructional process. As W. T. Lippincott, professor of chemistry at Ohio State University has testified, such government support of university research is "potentially the most powerful destructive force the higher education system in America has ever faced." (33 p. 18)

The essential criticism of research is provided in the editorial, "The Appropriate Function of a University" in Science, January 3, 1964.

> ...Among professionals, standards are employed which in their way are as false as the criterion of athletic prowess; for example, institutions are rated on the number and brilliance of their academic stars. ...By 'stars' I mean men who in various ways have made a name for themselves. But does the presence of such men necessarily contribute much to the teaching function of the university? Sometimes it does, but many of these men are only occasionally on campus or have little or no time for students. (1 p. 11)

No less a scholar than Jacques Barzun, former Provost of Columbia University, reinforces the same point:

> What has worsened a bad practice (of substituting graduate students for senior professors to teach undergraduates) is the new frenzy for research - not merely scientific research, and certainly not Government-sponsored research by itself, but the doctrine that whereas research followed by publication in print is important, and noble, and status producing, the invisible research of the scholar-teacher who publishes by word of mouth to his students is inferior, unworthy of reward, and burden producing in that it fosters contact with students. (32 p. 79)

The purpose of the material that follows is to document the case against academic research.

(b) Research and Student-Faculty Relations:

The research issue brings into sharp focus the long-standing ambivalence of the academic community about rewards that should be given to those with the expertise in communicating intelligence, relative to those with the expertise in developing that intelligence. We see today the backlash of criticism of teacher colleges that emphasized the technique or process of communication with the almost complete neglect of what was to be communicated. More frequently than not, teaching ability is simply taken for granted. And to some professors teaching is regarded as the thankless chore that "comes with the territory". The student's presence on campus is regarded as a necessary, but unwelcomed, distraction from research. As an extreme case in point, one departmental chairman reacted to a new faculty member who displayed a promising student term paper.

> If you want to assign papers to your classes that's your business. But if you don't have the wit to avoid reading them, at least you ought to have the wit not to tell me about it. What about your research? That's the only thing that counts for us ...and for you.

The ascendancy of the research function over teaching is verified by Dr. Alan M. Thorndike, senior physicist at the Brookhaven National Laboratory:

> In the scientific community research is an activity of greater prestige than teaching. There is no Nobel Prize for teaching. Accomplishment in research is also rewarded in many less dramatic ways - publication, invitations to prestigious conferences, easier access to crucial information and to funds, committee memberships, and means to influence the development of one's field of interest. Accomplishment in teaching is not recognized as clearly. In fact, it is not easy even to identify outstanding teachers. (33 p. 21)

Clark Kerr similarly acknowledged the adverse influence of research for the undergraduate:

> There seems to be a 'point of no return' after which research, consulting, graduate instruction become so absorbing that faculty can no longer be concentrated on undergraduate instruction as they once were. This process has been going on for a long time; Federal research funds have intensified it. As a consequence, undergraduate education in the large university is more likely to be acceptable than outstanding; educational policy from the undergraduate viewpoint is largely neglected. How to escape the cruel paradox that a superior faculty results in an inferior concern for undergraduate teaching is one of our more pressing problems. (40 p. 65)

How do the students react to these realities? The _New York Times_ describes the innocent freshman arriving on campus with expectations of intimate contacts with great and learned minds and the shock that comes with the discovery that faculty wants to have as little as possible to do with students. (41)

Similarly, the Wall Street Journal attributes the outburst of student revolt at the Berkeley campus to the strong dissatisfaction of undergraduates with their neglect by teachers. (42)

The charge is not confined to the popular press. Professor W. T. Lippincott explains: "Nowhere do we see the results of these forces more clearly and more devastatingly oriented than on the problem of quality teaching in the freshman and sophomore years." In his view, the prospect of mass demonstrations and other serious breakdowns of rapport between the students and the university reflect the "inverted" philosophy of instruction for the first two years characterized by the impersonalization of teaching. (14 p. 45)

The charge is also made that the research preoccupations of faculty on large university campuses are major causes of student unrest and rioting. The latter actions are said to be rooted in the impersonalization and the computerization of education in those institutions.

> Students don't like it; they are protesting the wall which ...has been erected between the professor and the student. ...students feel they are lost in the crowd and neglected by the professors. A University of California (Berkeley) professor, ...described student resentment in this way: "Students are very upset about the feeling that they are pushed around by the machine. They think the main function of this place should be them. If that's not what last fall was all about, I don't understand it." (32 p. 163)

Further corroboration of the causes of Berkeley unrest has been given by history professor Kramer J. Rohfleisch:

> While there I made a regular business of sounding out undergraduate opinion of this question. It was even then (1962) quite apparent that a heavy pressure of student resentment had been built up, resentment against a system whose standards of advancement and achievement were designed to draw men away from any serious devotion to undergraduate teaching. (32 p. 64)

In the perspectives of the Muscatine Report, the Berkeley Academic Senate's exploration of the sources of student unrest, the student was seen as one expecting to find on campus idealism, the wise man, expecting to live in a community in which he could identify faculty support for his perceptions of the wrongs of society, expecting support for his impulse to correct those wrongs.

> With such high, if unformulated, expectations, this kind of student is bound to be disappointed. Communication with the older generation often fails to materialize in large lecture courses. Few if any of his teachers even know his name. He comes to believe that his worth is measured in answers to mass examinations, not in personal assessment of his work and ideas. He learns to play a game within the University, to select his courses according to the grade he is likely to receive, to write ritual papers, and to second-guess the instructor. He decides that the University is too busy conforming to the needs of the establishment to produce men capable of opposing its evils. (45)

Often an implicit compact is made: the student agrees not to bother the faculty if the faculty agrees not to bother the student. Instead of involvement, there is detachment and cynicism. In the students' view, the faculty has its own game to play, in which research plays a dominant role. "He sees their research as a means for their own advancement rather than as a search for truth. They turn out to be neither prophets nor wise men, only specialists in one area with all their prejudices in other areas intact." (45) In its "Homily on the Importance of Teaching" the Muscatine report acknowledges, "A class taught by an unprepared teacher teaches the student neglect of scholarship. A department which encourages the professor to hide from students, teaches the neglect of human relations." (45) And it is acknowledged that "...some of our senior professors show an extreme aversion to undergraduate and especially to lower-division teaching." (45)

In most studies of student unrest the undergraduate is identified as the victim of research. The research-teaching link is clear for graduate students, but such collaboration is not characteristic of the undergraduate learning process. James R. Killian acknowledges that teaching is the "poor relation" to research. Gerard Piel explains that:

> ...The principal casualty of the Federal grant system, ...is the undergraduate ...The burgeoning of project contract grant research has downgraded the teaching function in all of these universities - with but a few notable exceptions - especially in the sciences and including even graduate education. (13 p. 53)

William R. Hutchison burlesques the popular criticism.

> All across academia, as we have now repeatedly been warned in 16 point capitals, self-interested professors are glutting the highways in their Flight From Teaching, while back on the campus the discontent of "cheated students" turns to revolt. (11 p. 430)

One of the most widely discussed exposés on the "new" campus atmosphere was provided by John Fischer, editor of Harper's, in his article, "Is There a Teacher on the Faculty?" Fischer explains that the "harsh truth" is that the faculty potential for teaching is not cultivated. There is simply no

> "They don't do it simply because our whole academic system is now rigged against good teaching. No faculty member (with rare exceptions) is rewarded if he teaches well, or punished if he doesn't. On the contrary, all the incentives are arranged to divert him away from teaching, no matter how strong a vocation he may have for it, and to penalize him if he wastes too much time on mere students. (10 p. 18)

Ironically, the reward for excellence of academic accomplishment is to be relieved of teaching duties. The teacher with the most to offer is the least available. As Fischer points out "...the best professors are seldom home." Indeed, the student

> "...will be lucky if he ever sees any full professor of stature, because of the academic pecking order is largely determined by the number of consultantships, industrial advisory assignments, off campus conferences, and traveling fellowships that a faculty member can pick up." (10 p. 22)

Fischer charges this is a critical element in the rising tide of student discontent:

> "That muffled snarl you hear is the sound of unhappy college students enrolling, just about now, for the spring semester. They are returning to their campuses by the hundreds of thousands with a swelling suspicion that they are being gyped. They are quite right." (10 p. 18)

(c) The Focus of Faculty Research and Student Unrest:

More student unrest is generated by the "direction" of faculty research than by the volume of such research. As Henry Steele Commager explains:

> "...Students are protesting against what seems to them irrelevance of much of the education imposed upon them--education justified chiefly by tradition, or by habit, or by the convenience of professors, or, still more dubious, by the supposed requirements of the business community or of government whose standards students do not respect. ...A great many students are indeed, in the fatuous phrase of their critics, alienated intellectuals, and they have much to be alienated from." (44)

Similarly, the Muscatine report pinpoints the perceived hypocrisy of society:

> While the dominant group claims to champion freedom, religion, patriotism, and morality, it produces and condones slums, racial segregation, migrant farm laborers, false advertising, American economic imperialism, and the bomb.

The decay of society is evident on all sides:

> To succeed in this society, [students believe], you must mask your real feelings, and become an organization man, wear what you're expected to wear, say what you're expected to say, and praise the product of your company when you know it has been built to wear out. It's all a game, playing a role; and these young people find that Americans in this other-directed age have been conditioned to accept without a thought or a murmur their own falsity. They accuse Americans of sacrificing conscience to the quest for status. In this society, they say, those who claim to be moral are really immoral and those who claim to be sane are truly insane. (45)

The innocence of student aspirations is reflected in the Muscatine report:

> Difficult courses that make them pore over facts and theorems can seem a tedious waste of time concocted by unimaginative professors. There must be instant knowledge - if only the faculty would become attuned to the modern world.

Thus, in the student view, the lack of relevance is not seen as impartiality or the neutrality of the analyst employing the scientific method.

(d) The Concentration of Research Activity:

There is considerable evidence that economies-of-scale operate in the research field. Favored universities become entrenched in their favored positions, for success feeds on itself. Once a critical mass of research volume has been attained, the institution receives medals because it has been awarded medals. Similarly, institutions who have struggled unsuccessfully to secure research finding are suspect. Previous failures prejudice the present. "Them that has, gits."

How does this halo effect work? One professor testified that his submission of research proposals from a rather obscure university failed to secure support. When he shifted his location to a well-known institution, those same proposals were immediately funded. Another instance involved a newly-appointed staff member previously employed with the Bell Telephone Laboratories where he had helped obtain a $300,000 research grant. But when he joined the faculty at Trinity University, two N.S.F. proposals were rejected, not because his proposals lacked scientific merit, but because his teaching load was considered to be too great to support the projects. (33 p. 31)

N.S.F. Director Haworth has acknowledged the self-reinforcing character of research.

> There is no question about it, and, of course, it works both ways. It is a closed loop, so to speak. The more chickens you have, the more eggs you can get; and, therefore, the more new chickens you can hatch. In other words, where there is already scientific strength, this attracts funds for doing research and development - private as well as public, incidentally - and that in turn attracts more scientists and engineers. (36 p. 670)

The cumulative advantage accruing to institutions with a history of success in securing research grants is described by Professor George E. Pake, provost of Washington University.

> If two institutions A and B vie for the same federally supported research project, and if institution A had higher competence than institution B in this research field, it is proper enough that institution A receive the project. But let us suppose that institution B is a developing institution, one which the Nation urgently needs to have take its place among quality universities of the land. One must now face the fact that the award of the initial grant to institution A places institution B in an even worse competitive position the next time it seeks a project in this field. It is clear that the overall development of a strong university system for the United States is an important consideration, and the promise of future development of a strong scientific program may sometimes be a valid reason for awarding Federal research support to one institution when another may actually at that moment have somewhat higher competence in the same field. (33 p. 44)

Such concentration of academic research has been a subject of Congressional concern. In 1965, President Johnson issued the following statistics to his cabinet in expressing his anxiety about the academic capabilities of the country. (46)

> Today the Federal Government is spending $15 billion annually on research and development activities. Nine percent of this, or $1.3 billion is being spent in our universities on research grants and contracts. Additional sums are spent for educational purposes such as fellowship or training grants...
>
> The impact of these Federal funds is significant. They account for about two thirds of the total research expenditures of colleges and universities. The manner in which such funds are spent clearly has a most important effect upon advanced education in this country, and upon the future of our nation's universities.
>
> ...At present, one half of the Federal expenditures for research go to 20 major institutions, most of which were strong before the advent of Federal research funds.
>
> ....I am asking each agency and department with major research responsibilities to reexamine its practices in the financing of research. I want to be sure that, consistent with agency missions and objectives, all practical measures are taken to strengthen the institutions where research now goes on, and to help additional institutions to become more effective centers for teaching and research. (34 pp. 6-7)

In the Hearings that followed there was ample testimony on uneven opportunity to secure research funds. Professor Kramer J. Rohfleisch explained.

> It seems that the rich grow richer and the poor move slowly. ...It is just possible that for the short term advantage of immediate and efficient results, the Government is failing to water the seedbed of future growth. Not all the talent lies in the great universities. The smaller institutions contain many men and women with creative gifts who, for a variety of reasons, have elected to avoid the large institutions. (32 p. 65)

What is the concentration of Federal research funding? Fifty-four universities, out of a total of over 2,000 colleges and universities, receive about 60 percent of all funds going to educational institutions for research and science education. N.S.F. analysis of data for fiscal 1963 showed that 100 colleges and universities accounted for more than 95 percent of all funds, 50 institutions received 75 percent and 10 received about 35 percent. (33 p. 30) The N.S.F., of all Federal institutions, is most conscious of the need to cultivate numerous centers of excellence to serve both national and regional interests. But in granting its awards, it was found that 93% of all NSF fellowship recipients entered 100 institutions. Only 61 percent of the recipients were products of those institutions. (32 p. 165)

The concentration of benefits is preserved by the panel system for determining the potential of research proposals. Selection committees are typically made up of the same faculties that are appointed to the name institutions. As stars, they are in a good position to be star-makers, and consciously or not, are partial to the favored institutions. As Professor Mervin B. Freedman of Stanford University explains:

> The chief difficulty with the disbursement of research funds is that the selection committees of Federal Agencies and the boards of private foundations are dominated by a rather small interlocking directorate. This small group of people makes the decisions as to which researches and which research projects will be supported.
>
> These selection committees and boards tend to be self-perpetuating. When terms are up, replacements are like minded. So it is that original work and new ideas may be smothered for want of support. (32 p. 223)

In reviewing the testimony on concentration, the House Operations Committee acknowledged the subtle influences in panel selection and the concentration of members from the major academic institutions.

> A survey of the present list of panelists from which the NSF draws its advisers shows that of the 271 members of 29 advisory panels, 25 are from the University of California; and the Universities of Illinois, Wisconsin, and Michigan are represented by from 5 to 10 panelists each. Only 113 institutions are represented. Only 8 of the panelists represent non Ph.D. granting institutions. Virtually all panelists have themselves been, and some are now, recipients of Federal research awards. (31 p. 49)

The existing distribution of Federal funds for research resulted in misallocations, both between institutions, large and small, but also between areas. The House Committee observed:

> 1. Concentration of major proportion of the support in too few institutions (about 25 currently received some 30 to 50 percent of Federal funds for basic research) and in a limited geographic area (3 states receive about 60 percent of such funds). This has tended to concentrate outstanding scholarship at the expense of building our educational framework more broadly over the Nation. ...

> 2. In the shadow of the big 25, other institutions have failed to develop or have regressed in the relative sense. In this age, each of our 100 or so budding metropolitan areas requires a great graduate institution to set the metropolitan standards of scholarship and educational motivation to avoid generation of new Appalachias. Our Federal policy should recognize this urgent need in more equitable distribution of funds to encourage scientific research and educational excellence broadly over the Nation. (32 p. 7)

Thus the costs of funding faculty research cannot be limited to the direct expenditures made to or by institutions undertaking such research. Indirect penalties are absorbed by institutions unable to attract faculty to teaching jobs because those faculty members have the option of light (or even non-existant) teaching responsibilities in research-oriented in-institutions.

The small liberal arts colleges are the usual victim:

> A continuing problem for almost all institutions of higher education is a shortage of qualified personnel, particularly in the sciences where attractive employment is available outside academic institutions. There is a four-sided competitive struggle for the more highly competent scientist and engineers involving industry, Government, colleges and the universities proper, and the contract research centers which the universities manage. Small colleges have greater problems than large universities. Liberal arts colleges which do not have Federal research programs have difficulty in attracting capable scientists(37 p. 61)

(e) The Reward System for Teaching and Research:

The young graduate student quickly learns that the name of the game is research. The reputation of the institution is established by the "celebrities" attached to the faculty. Intellectual stars attract good graduate students, generous research funds, and the respect of associates. Junior faculty working within the context of that celebrity system quickly appreciate how their own future dangles on the thread of research accomplishment. As one young Yale faculty member described the scene, the initiate is confronted with a set of fruit-picking attitudes which accompany careers floating from place to place. One hears such phrases as "riding the circuit" and of being rotated. (7 p. 14)

During this anxious interlude, the aspiring junior faculty member learns that he must dodge his students to concentrate on his research if he is to be anything more than the "hired hand".

Professor Kramer J. Rohfleisch offers corroborating testimony on the perpetuation of this value system.

> But even before they separate from their mother institutions many of them have been advised to take their teaching lightly because the rewards in that channel are so slender. These apprentices will prefer to open atoms rather than minds. It is more profitable - and often less work. The examples set for them by their own preceptors are not encouraging for teaching. They can see the huge grants dangling from one or more agencies of the Federal government; they see on nearly every campus the erection of semi-independent research empires that operate on the periphery of the institution and often beyond its control. They can even see that in many cases it is the more talented of their contemporaries who escape the labor of the teaching assistant and become research assistants, and these will be given higher stipends than their fellows in the classrooms. No wonder then that so many of them, nourished as they are on a steady diet of research, carry with them to their first academic posts a strong dose of scepticism concerning their teaching obligations. And since so many of them are themselves products of the undergraduate divisions of the public universities, their personal exposure to a system vigorously devoted to the business of opening and strengthening minds upon the undergraduate level is indeed limited. Many are disillusioned. Many more seek at the earliest opportunity to convert their new homes into replicas of the

2

> institutions which nourished them, unaware of the growing wave of criticism now falling upon the practices of those academic home-lands. (32 pp. 513-514)

Benjamin Fine offers further supporting testimony:

> ...Large numbers of ... faculty members are switching from teaching to research financed by grants. There is more prestige in research. A good teacher is revered by his students. ...He may even, on occasion, win the $500 alumni award for best teacher of the year. On the other hand, the college researcher, with millions of dollars from the federal government, as well as private industry, rides high. ...But his loyalty is to the laboratory, not the classroom. (18 p. 419)

The "good" professor is, of course, one who can add to his store of knowledge without reducing his ability, motivation, or time for dispensing that knowledge. But with a value system that rewards the expansion rather than dispensing functions, the attractions of research are often overwhelming. As noted at the outset, it is precisely because of the reward system that teaching is neglected:

> Hence the lectures delivered year after year from notes compiled a generation ago...the section men who conduct their classes with unconcealed distaste, begrudging every minute stolen from the lab...the perfunctory seminar, the brushed-off questions, the impatient stifling of a student's bothersome zeal. (10 p. 20)

Science, in its review of "The Appropriate Function of a University," condemns this value system.

> Among professionals, standards are employed which in their way are as false as the criterion of athletic prowess; for example, institutions are rated on the number and brilliance of their academic stars. (1 p. 11)

The distinguished scholar has little or no time for students. But it is acknowledged that with the "present rules of the game, any scientist who teaches when he can do research must be unusually public spirited or blind to his own interest. The result is to demean teaching." (1 p. 11)

There is abundant testimony on how research rewards depreciate teaching. Walter P. Metzger, Professor of History at Columbia University testifies:

> In the research-centered institutions, undergraduate education does get slighted, especially in the first and second years. Here, the reward system does favor the researcher over the pedagog - the man who wins the plaudits of his peers over the man who is admired by his pupils. For this and other reasons, the more senior members of the faculty do press for fewer hours at the lectern, and a lighter-than-usual teaching load is used as a lure to attract good men. To man the classrooms of the college...predoctoral teachers are employed in large and ever-increasing numbers. (32 p. 55)

Professor Kramer J. Rohfleisch acknowledges that publication pressures are so overwhelming that "Berkeley has lost - or sacrificed - a number of good men upon the altar of teaching. So has Yale."

But if we are confronted with the criticism of faculty indifference to teaching, who will reward the teacher for teaching? In Professor Rohfleisch's view, "The local committee on promotions will smile upon the published product because such can be measured and weighted. It can only act upon a very rough estimate of a man's teaching ability." He further contends that "...the rewards for excellence in teaching, at least in our large universities, have been less than minimal. In fact the consequences of excessive devotion to excellence in this area (of research) have generally been ruinous to a young instructor." (32 p. 64)

Similarly John W. Gardner, when President of the Carnegie Corporation, acknowledged that:

> Undergraduate education has been neglected, but the reasons behind the neglect are numerous and varied. Federal support of research cannot be reckoned a primary cause. The real difficulty is the widespread view among faculty members and administrators that teaching is not as significant a measure of one's worth as is research. (32 p. 52)

Further testimony that promotion standards are linked directly to research in the "publish or perish" rat-race is provided by a student of Brown University:

> ...due to the emphasis on publishing in the university world, the teacher who gets promoted are those who publish - whether their words are good or bad, whether their teaching is good or bad. I think this is, to a large extent, due to the fact that universities can obtain grants through individuals who have obtained a reputation in their field - through publishing. Thus, they encourage it by basing promotions on it, and the whole teaching profession suffers. (33 p. 23)

A Yale student posed the choice facing faculty in more brutal terms: "Undergraduate education is suffering, not because talented professors and superior graduates find research more rewarding than teaching; they find research more mandatory than teaching." (33 p. 23)

Speaking from the viewpoint of the scientist, zoologist Arthur W. Martin of the University of Washington points out that it is the individual who devotes his full time to research within the academic enterprise, who has superior status and prestige when - and if - he should decide to return to the classroom:

> These persons, though not on faculty rosters, can remain at universities without teaching for years. If they do turn to the classrooms, they can enter teaching at higher salaries, because of their research and publication, than their colleagues who have been teaching during the period. (33 p. 24)

History professor Walter P. Metzger of Columbia University explains that the growth of "surrogate instruction" reflects the reluctance of faculty to admit to their ranks individuals who have a teaching-only orientation, for this might detract from their august-self-images.

> Rather than attenuate the quality of their staff, they would rather attenuate the quality of their instruction. The fact that this strategy is economical makes it even more attractive. (32 p. 56)

(f) The Measurement and Rewards of the Teaching Function:

The painful truth of the matter is, that while we offer rhetoric and praise to the "good" teacher, such support is more often a verbal tribute to this symbolic function of the academic enterprise than economic. The rewards to the individual teacher are, in the final analysis, established by the market place and, in that market place (admonitions and banquet oratory notwithstanding), it is the producing scholar rather than the eloquent teacher who is well rewarded. In the Science editorial on the "Appropriate Function of a University," the concession is made:

> Under the present rules of the game, any scientist who teaches when he can do research must be unusually public spirited or blind to his own interests. The result is to demean teaching.

> The difficulty is that academic stars and research output can be easily identified and can bring acclaim to an institution. How many universities have gained reknown for their instruction? (1 p. 11)

Dr. Alfred B. Garrett, Vice President for Research at Ohio State University, makes the point even more sharply: "No Nobel Prize has been awarded for good teaching alone but good teaching has made possible many Nobel Laureates." (14 p. 46)

One obvious reason for the dominance of the publication standard is the reality that articles can be counted. Further, they are subject to evaluation, generally of a panel of experts in the discipline who ration presumably limited printed pages available in each issue of a technical journal. While there is much cynicism that pages can be counted, or even weighed in the evaluation of teaching skills poses serious and largely unsurmounted problems. Again, Professor Rohfleisch articulates the difficulty with eloquence:

> If we assume that in general men will tend to erect rather precise standards by which to assess those things which they value highly, then we might readily conclude that the faculties of our institutions are not overly concerned with teaching. We have no standards, or at any rate, none that are based upon any precision. I daresay there is scarcely any other activity on a campus about which so little accurate information is available as its teaching. And I know of no other profession that operates so thoroughly in the dark whenever its own performance is concerned. Lawyers often perform in public, doctors operate in semipublic before their peers, but teachers teach a private clientele that normally is strictly off limits to every other teacher, or most certainly off limits to anyone who might want to determine how well affairs are going. (32 p. 511)

The subtleties of measuring faculty effectiveness, notwithstanding the evaluation process, has somehow become involved in the "sticky business" of academic freedom. Because faculty resistance to evaluation procedures has been general, "evidence" is derived from gossip, second and third-hand evidence or on peripheral matters such as "habitual sobriety and the wearing of neckties."

Harper editor John Fischer is less generous, however, in identifying both the causes and the consequence of the evaluation vacuum. In his view, the lack of objective and impersonal standards encourages poor teaching.

> It is true that nearly everybody on the campus knows who are the good teachers and who the bad ones; but this information is acquired by a process of hearsay, student gossip, and osmosis. There is no solid, safe yardstick that a dean or department head can use to justify raising the pay of a good instructor, or firing a poor one. He dares not depend on his personal judgment, however sound it may be. That way lie recriminations, accusations of favoratism and injustice, and probably a fight with the American Association of University Professors, one of the most powerful of trade unions. ...Consequently, in doling out rewards and punishments the administrator falls back on something that can be measured: research and publication. (10 p. 19)

Nor is he persuaded that the healthy balance between research and scholarship can ever be restored until a reasonably objective yardstick is devised for testing - and rewarding performance as a teacher. Dael Wolfle, in the editorial in Science titled "The Great Teachers" makes a similar point:

> One point is clear: the status of teaching is not going to be enhanced by lowering the status of research. Any attempt in that direction would deservedly fail. A second point is clear: if great

> teaching is to be rewarded, the great teachers must be identified. And here there is a problem for those who contend that the quality of teaching is unmeasurable. (23 p. 1421)

(g) Research and the Autonomy of the Faculty from Institutional Obligations:

The charge is often made that with the outside funding of faculty research, the faculty member becomes more important to the institution than is the institution to the faculty member. The discipline of the contract disappears. The excesses attributed to faculty, operating from this position of strength, are probably mettered about more frequently by administrators than given formal exposition in print.

What are the consequences of such options for outside services?

First, it is charged that the grantsmanship game has corroded the intellectual integrity of the faculty. Funds are secured by submitting proposals on issues you have learned are significant to the funding agency. Dean of Rutger's faculty Donald H. Riddle, charges there has been a perversion of research activity:

> At almost any sizable university there are at least one or two faculty members who would be willing to research almost any problem that somebody will support financially. (33 p. 22)

The editor of the Scientific American, Gerald Piel depicts the hungry professor as the "mercenaries of science and scholarship." (33 p. 22)

Secondly, the faculty member who commands or attracts research funds can create his individual enclave within the university, insulated from the discipline and demands of that institution. Howard A. Schneiderman, chairman of the department of biology at Western Reserve University, describes the leverage of such a faculty member:

> Consider a distinguished scientist in a particular field who may command research support for his program of several hundred thousand of dollars per year. As an individual, he may command more support than the rest of his department, taken altogether - more than the chairman of his department and, in some cases, even more than the dean of his college. He is in a position to exercise immense leverage because of the funds at his disposal. In many cases he provides funds for most of his own salary. All of his equipment comes from Federal funds, as does the support for six or seven graduate students in the department. He gets his own way and teaches very little. If complaints are made about his activities, he threatens to "pick up his marbles" and go elsewhere. (33 p. 22)

(h) The Limited Degree Output of Research-Oriented Institutions:

There is evidence that the concentration of federal funds in favored institutions in order to increase - among other things - the total outflow of skilled scientists, has not been successful. Over the broad span of time, there has been an increased dispersion or a broadening of the number of institutions responsible for the flow of scientific talent or individuals securing the doctorate degree. From 1945 to 1949, the first ten schools produced 46 percent of the Ph. D's in the natural sciences. By 1961, the 10 schools producing most Ph. D's accounted for only 35 percent of the Ph. D. output. In one estimate, the top 20 institutions received 32 percent of Federal funds in 1948; 58 percent in 1954 and 60 percent of those funds 1966. This spread in the distribution of institutions awarding degrees is in contrast to the concentration of institutions securing research funds. (33 pp. 32-33)

The trend line of Ph. D. output from 1900 has been sustained at about a 7 percent growth rate, interrupted by World Wars I and II. But from the mid-fifties, when Federal money was pumped into universities at a progressively increased rate, it did not have the effect of increasing Ph. D. production. In fact, Ph. D. production fell below the 7 percent trend line.(33 p. 34) Further, the heavy support of science appeared to coincide with a relatively smaller share of doctorates in the sciences.

Federal funding for science education has not produced any alteration in the relative positions of the top degree-producing institutions. California, MIT, Purdue, Wisconsin, Illinois and Michigan were the top producers of science doctorates in 1955 as they were in 1964, even though in the former period, Federal research programs at these institutions were in their infancy. Federal science money "may have helped these universities to retain their positions, but not to attain them."

The amount of science-education investment does not correlate with doctorates awarded. In fiscal 1964, for example, the University of California received a total of $89 million from the five principal Federal agencies; the University of Wisconsin secured $28 million, Purdue $8.5 million and Iowa State only $900,000. While California produced 2.3 times as many doctorates as Wisconsin, it received more than 3 times as much money: it produced 2.8 times as many doctorates as Iowa State, but got nearly 100 times the amount of money.

The inference can be drawn that the amount of investment in science training has not been associated with an accelerated flow of Ph. D's in the science field.

(1) The Lack of Relationship Between Research Expenditures and the Quality of Undergraduate Teaching:

Significant in the search for mechanisms to improve the quality of instruction there is no discernible relationship between the volume of federal scientific research funding and distinguished undergraduate instruction. If the "objective" measure of such instruction is the frequency with which an institution's students win prizes and awards for graduate study, how does the award frequency for students correlate with research expenditures? The American Council on Education study of 12,500 winners of Woodrow Wilson, NDEA and NSF awards from 1960 to 1963 is revealing. Table I shows the top 50 colleges and universities ranked in order of their ability to turn out winners fo fellowships from these sources. Only sixteen of the institutions on this list are major recipients of science funds. Most of the top recipients of Federal funds are conspicuous by their absence, including the University of California at Berkeley, Columbia University, and a number of the great State universities. The winners appeared to be those small liberal arts colleges which are unembarrassed to be identified as student-oriented or as teaching institutions. If Berkeley had produced fellowship winners at the rate achieved by Oberlin, Berkeley would have had 1,728 winners instead of 132. At the Swarthmore rate, Berkeley would have had 2,790, and the Uni-

TABLE I

Percentage of winners of national fellowships among all baccalaureate degrees awarded 1960-63, inclusive:

		Percent
1.	California Institute of Technology	20.1
2.	Reed College	18.4
3.	Haverford College	11.9
4.	Swarthmore College	11.0
5.	Carleton College	8.4
6.	Massachusetts Institute of Technology	7.5
7.	Wabash College	7.1
8.	Cooper Union	6.9
9.	University of the South	6.7
10.	Queens College	6.5
11.	Bryn Mawr College	6.2
12.	Pomona College	6.0
13.	Wesleyan University	6.0
14.	University of California, Riverside	6.0
15.	Hamilton College	5.8
16.	Harvard University	5.7
17.	Princeton University	5.6
18.	Kenyon College	5.6
19.	Kalamazoo College	5.5
20.	University of Chicago	5.4
21.	Antioch College	5.4
22.	Amherst College	4.8
23.	Knox College	4.8
24.	Rice University	4.6
25.	Oberlin College	4.6
26.	Case Institute of Technology	4.1
27.	Southwestern at Memphis	3.9
28.	Yale University	3.8
29.	Yeshiva University	3.7
30.	Davidson College	3.5
31.	Rensselaer Polytechnic Institute	3.5
32.	Radcliffe College	3.5
33.	Stevens Institute of Technology	3.5
34.	Lawrence College, Wisconsin	3.4
35.	Millsaps College, Mississippi	3.4
36.	Polytechnic Institute of Brooklyn	3.4
37.	Tulane University	3.3
38.	University of California, San Francisco	3.3
39.	Cornell University	3.2
40.	Grinnell College	3.2
41.	Brandeis University	3.1
42.	Johns Hopkins University	2.9
43.	Beloit College	3.0
44.	Carnegie Institute of Technology	2.9
45.	Wellesley College	2.9
46.	Brown University	2.9
47.	Dartmouth College	2.8
48.	Williams College, Massachusetts	2.8
49.	Wofford College	2.6
50.	Occidental College	2.5

versity of Michigan 2,325 awards. At the Reed College ratio of 72 awards from 600 students, Berkeley would have had 3,240 fellowships. Professor Kramer J. Rohfleisch concludes from these data:

> Few if any of these institutions possess departments which would be rated "distinguished" in terms of having men who have gained Nobel prizes or places in the National Academy of Sciences. None boast of enormous libraries, or even of elaborate scientific equipment. But despite the lack of these badges of distinction, something is occurring which lies beyond the grasp of the great ones. They are teaching institutions. Their faculties perform their research too, but it is superimposed upon their task of teaching. (32 p. 515)

SUMMARY AND CONCLUSIONS:

This compilation of opinions on the relationship of research to teaching has, by design, focused on the negative aspects of that relationship. We have noted that the "star" or "celebrity" system is no insurance against student unrest; indeed, there is some suspicion that the stars are often less interested in teaching than research, less interested in undergraduate instruction than the small graduate seminar.

The causes for student unrest are obviously complex, but two aspects of faculty research engender student criticism and overt hostility. First, with the distance between faculty and student, the college or the university does not provide that "community of scholars" the student hopes would characterize his college training. Secondly, and perhaps more important, the infusion of federal funds for research on defense hardware has contributed to the cynicism of students about the integrity of the professors.

These opinions also pinpoint the sharp discrepancy between the rhetoric that emphasizes teaching as the "vital center" of the academic enterprise, and the reality that measurement standards for performance in this area are often nonexistent. But more important the reward system does not, in reality, acknowledge the excellence of instruction. The $50 or $500 alumni award to the excellent teacher is no match for the multi-million dollar flow of revenues to fund research.

Those who emphasize that teaching is the central function of the college and university fail to recognize the transcendent importance of the value structure of each discipline within the university. While the professor may be accused of pragmatism in orienting his life to research, it is precisely through that preoccupation (and little else) that his intellectual status is achieved, secured and verified. In this sense, the individual's loyalty is to his profession, not to his institution or even his students. Admonitions - and even legislative enactments - that do not appreciate that reality or offer at least equal rewards to these competing functions will have little influence. Academic status is a function of competence, as measured by the profession, not one's employer.

The rapid expansion of federal funding for scientific training and related research activities has created problems. First, the increased concentration of funding has created have and have-not institutions. Within institutions the faculties are divided into those with research status (and the trappings that go with research expense account) - and those denied such benefits. Morale at institutions has been further fractured by the autonomy (and sometimes arrogance) of distinguished professors who have grown important to the institution.

Behind all of the considerations of this chapter is the reality that, in the competition for sparkling faculty, the pressure of that competition compels administrators to create an attractive environment. One attraction is the reduction of the teaching load. The paradox remains that programs designed to improve the excellence of the academic enterprise must, as a means to that end, reduce the opportunities of contact between students and distinguished staff. When such contact is preserved, it reflects the altruism or service impulses of the faculty member.

APPENDIX B - Research and Teaching: The Case for Research

If one were to compare the views offered by those critical of research compared with those who favor research, there is no doubt that the pro-research group would dominate. In this chapter, we shall identify the complementary relationship of research to teaching.

(a) The Relevance of Research to Effective Teaching:

Even those who emphasize the competitive relationship between teaching and research usually introduce the caveat that the mischief is created in particular circumstances by peculiar forms of research. Following are a few selected samples of sentiment typical of the unreserved enthusiasm most academicians have for research as a supporting mechanism for instructional activity:

> ...the student who seeks good teaching should attempt to enroll at a college where research is encouraged. The young Ph.D. who looks forward to being a good teacher must plan a program of continuous research, to keep in intellectual trim. The two are inseparable, and laymen, parents, and administrators had better resign themselves to that fact, assuming that it requires resignation.
>
> This is an unsurprising conclusion. Indeed, it is so obvious that I find it difficult at times to understand what the current to-do is about. A good teacher inspires and exploits curiosity. How can he possibly accomplish this if he lacks the precious quality himself?
>
> Communication becomes more difficult as one's audiences become groups of strangers. Added to this perplexity is

> the weariness of repetition. After one teaches a given course a certain number of times, the subject loses its freshness, as do the yellowing notes from which the daily lectures are delivered. Teaching wears you out. You get tired of it. Research, in my experience, is less attritional.
>
> Research becomes a broad path to regeneration and resurrection. Only the scholar can introduce continuing variety into his teaching. Only the scholar can escape the monotonous rut by projecting and teaching new courses and discarding what has become wearisome and insufferably dull. Only the scholar, enjoying the vitalizing excitement of discovery - an experience from which neither time nor long classroom service will ever take the exhilarating edge - can find continuous meaning and satisfaction in a teaching career.
>
> ...if curious minds are to be attracted to teaching in the future, the prospect of discovery must be recognized as part of a teacher's life. Take research out of a teacher's life and you condemn him to a robot existence. I know that I do not want my children to be taught by robots... (18 pp. 419-427)

Lee A. Dubridge writes with equal eloquence on this relationship:

> I am fully convinced of the thesis that American institutions of higher education are not solely schools for the formal classroom instruction of students. I believe they must also be centers for scholarly inquiry; that they have a responsibility ..and the opportunity ..to expand knowledge as well as to expound it. I believe that advanced undergraduate students -- and, of necessity, graduate students -- must be introduced to the very frontiers of knowledge in their principal fields of interest, and be given a glimpse into the vast unknown that lies beyond the frontiers. I believe that students can be guided to these frontiers only by teachers who are themselves familiar with the territory. And I believe that when an active mind of teacher or student has some experience with the fascinating frontiers of knowledge there will be generated an irrestible desire to penetrate these frontiers - at least a little. Thus scholarly inquiry -- which in my vocabulary is synonymous with research -- is an essential part of higher education. Far from believing that research is a competitor or an enemy of higher education (of teaching, if you will), I insist that they are inseparable and that each is essential, and complementary, to the other. (9 pp. 8-9)

William R. Hutchison, in "Yes, John, There are Teachers on the Faculty," explores the two years' public clamor about research, (even while contending "...the usual anti-research argument is enfeebled for any useful function by its grave misunderstandings of the educational scene.") In his view, the public has the perception that research is a shameless boondoggle quite nonessential to the main business. "The business of teachers," as the saying goes, "is to teach!" (Dammit! normally is added.)

> The academics so far have offered little response. The usual answer from that quarter makes research sound like an intellectual sauna bath, a way of keeping the tired academic mind in trim. Rarely do the defenders mention more concrete connections between research and teaching, perhaps because these are too obvious. The fact is that no very vital instruction of any kind can be carried on without scholarly books and the studies of monographs that undergird them. (11 p. 433)

Berkeley's Faculty Senate review of student unrest and the research function concluded:

> ....Nowhere do we suggest a diminution of the research activity of the faculty. Research (or creativity) is of the very character of this campus; without it Berkeley would be indistinguishable from other kinds of schools. ...Rather than adopt some simplistic formula based on the supposed mutual exclusiveness of "teaching" and "research," we have found it more fitting to this campus to try to suggest how teaching and research can be made to nourish each other better. Our ideal here is a kind of teaching suffused with the excitement and authority of research, and a kind of research responsive to the humane requirements of teaching....
>
> We agree with our colleagues at Yale in their report of last June that "original scholarly work is the surest proof of intellectual distinction and the surest guarantee that intellectual activity will not cease." Scholarship, then, is a

> promoter of good teaching, and in the long run can be justified only by the human needs of which the teaching of others is a great part.
>
> ...we find no place on the faculty for researchers who are not teachers. ...But the ideal of the University should be one of scholarship at the service of teaching. (45 pp. 5-7)

The ideal, then, is to create a campus atmosphere in which both the generation and diffusion of wisdom are equal, integrated activities. It is a campus with an excitement generated by the exploration of the unknown, coupled with the satisfaction that comes with understanding the known. This target is captured in the following statement by Alfred N. Whitehead:

> The justification for a university is that it preserves the connection between knowledge and the zest of life, by uniting the young and the old in the imaginative consideration of learning. The university imparts information, but it imparts it imaginatively. At least, this is the function which it should perform for society. A university which fails in this respect has no reason for existence. This atmosphere of excitement arising from imaginative consideration, transforms knowledge. A fact is no longer a bare fact: it is invested with all its possibilities. It is no longer a burden on the memory: it is energizing as the poet of our dreams, and as the architect of our purposes. (47 p. 97)

Nor need teaching and research be viewed as sequential complements. Indeed, the former can be the inherent characteristic of the latter. As Earl V. Pullias emphasizes, it is through research that the adventure of learning is achieved. And it is in an institution that has captured the enlivening search for understanding that we can reinforce, deepen, broaden, and excite the learning process. It is through immediate and lively experience that the learning process achieves its freshness, relevance and value. As Pullias explains, learning arises from vivid, highly motivated experience, involving the interaction with reality or the symbols of reality and the interaction of teachers striving to impart to students those experiences imaginatively in depth and breadth. (16 pp. 243-247)

James R. Killian, Jr. also denies the charge that sponsored research had subverted good teaching. In his view, research minimizes obsolete learning, the drab and anemic content of what might otherwise be a teaching factory. "Teachers who do no research or who fail to deepen their mastery of their fields are likely to become teachers of obsolete knowledge, and the first to find this out are the students themselves." He is not willing to buy the Mr. Chips stereotype of a previous generation:

> I suspect ...that at least some of the glamorous teachers of the past, who won applause for their classroom manner and their charming eccentricities, may have lacked the creativity, precision, and depth of scholarship that today are regularly expected of the scholar-teacher along with the gift for inspiring students. (13 p. 54)

He quotes the protests made by Lee Dubridge against a _New York Times_ editorial charging the neglect of the teaching function:

> Heavy teaching loads without research opportunities lead not to good teaching, but to bad ...No university I know will condone a gross neglect of teaching by any faculty member. ...Today some of the finest research scholars are doing outstanding teaching. (13 p. 54)

P. H. Ableson, writing in _Science_, charges that the academician has seriously failed to educate the public about the character of scholarly inquiry; he has not adequately responded to the charge that research is destructive to the teaching function. In his view, with science evolving rapidly, a major task for professors is to keep up with developments in their field. The full-time instructor who presents material that is out of date defrauds his students in at least three ways: He fails to render proper guidance with respect to subject material, he fails to set high standards of scholarship, and he fails to inspire enthusiasm for learning. To be a good teacher of science, a professor must be intellectually virile. He must be part of the creative enterprise. The most practical means of keeping current with new developments is to participate personally in research activity.

He is not persuaded that publication of personal research is an illicit test of individual endeavor:

> The sharply disciplining nature of cold-eyes peer evaluation induces research scientists to work hard at creative endeavor. As part of that effort they try to achieve awareness and understanding of new discoveries in their branch of science. Their students are beneficiaries. (2)

In 1960, the President's Science Advisory Committee explored the competitive and integrative relationships between research and teaching, and strongly endorsed the cooperative links between the two. First, it strongly endorsed the proposition that individuals are most likely to secure an understanding of problems in "learning by doing". "In all forms of scientific work a man's effectiveness is multiplied when he has that depth of understanding of his subject that comes only with the experience of working at a research problem." (39 p. 5)

> It is the fundamental contention of this report that the process of graduate education and the process of basic research belong together at every possible level. We believe that the two kinds of activity reinforce each other in a great variety of ways, and that each is weakened when carried on without the other. We think also that this proposition has substantial implications for the policy of both the Federal Government and the universities...

It viewed graduate education, research and teaching as inseparable.

> .... There is a radical error in trying to think of them as different or opposite forms of activity. From the point of view of the graduate student, the teaching and the research of his professor are, at the crucial point which defines the whole, united. What he learns is not opposite from research; it is research.

Emphasizing that the spirit of scientific inquiry reflects the experience with research and is the critical posture for a life-time of learning, the Commission concludes:

> ...we insist on the central point; the would-be scientist must learn what it is like to do science, and this, which is research, is the most important thing he can be "taught". (39 p. 5)

It is in the pure sciences where the obvious relevance of laboratory experimentation and the learning process can be seen most clearly. In the spirit of the Science Advisory Commission, Professor Philip Handler, Chairman of the Department of Biochemistry of Duke University's Medical Center, testifies:

> The scientist engaged in research is a more effective teacher, for he brings to the classroom the excitement and stimulation which he finds in the laboratory. Moreover, the scientist who as a teacher is in contact with probing young minds is more likely to be a perceptive scientist. Thus, through the interaction of teaching and research, each gains from the other. (33 p. 12)

If it be conceded that research is indispensible to good teaching, it must also be admitted that the opportunity to undertake research is not a universal privilege. Dr. Alan M. Thorndike, senior physicist at the Brookhaven National Laboratories testified about the temptation of a job offer in a small New England liberal arts college. There he would have only the opportunity to teach:

> "It had appealing features, but seemed like a step back into a previous century, and I decided to stay with the 20th." (33 p. 31)

So obvious is the complementary relationship that many faculty find it difficult to take questions on the subject seriously. As one respondent to a congressional inquiry about the relationship of teaching to research simply explained:

> It is nonsense to talk about the "good teacher" versus the researcher. The man or woman who does little or no research becomes intellectually sterile and capable only of "preaching sermons". (32 p. 31)

This same professor contended that there is no logic to support the popular charge that the undergraduate students absorb the penalties of faculty research preoccupations:

> I believe that the research programs have led to higher quality undergraduate teaching programs by providing a mechanism for keeping the faculty up to date, by permitting the employment of more highly qualified faculty members and, through the participation of students, providing the students with a much greater understanding of the relevancy of their course programs to the careers which they subsequently hope to pursue. (32 p. 33)

The perspectives of the economist, Ralph W. Pfouts, serving as Chairman of the Department of Economics of North Carolina, reinforces this theme:

> I believe that the surest way to obtain an alert and enlightened faculty is to have one that engages in research. The faculty member who both teaches and researches finds himself in the midst of a struggle to advance knowledge, and he becomes aware of the changing nature of knowledge in a way that is not possible if he is not engaged in research. The changes come home to him emotionally and become a part of his psychology; they are not merely recognized in an intellectual way. (32 p. 50)

English professor David A. Bevington of the University of Virginia acknowledges the "new" era in which attention to research is the institutionalized component to the education process:

> The sleepy days are over, and I welcome the change. Of course this is not to say that we can countenance neglecting of students; but this is a problem for the individual institutions to solve in balance with research growth. Federal funds ought to give schools the freedom to hire a number of teaching-oriented faculty along with the researchers, and to buy a portion of the researcher's time so that he is sharing the results with students as well. (32 p. 83)

English professor R. P. Adams of Tulane University agrees fully: "My experience has been that teaching depends directly on research, and that the more research I am able to do, the better my teaching becomes. ...A teacher must be a learning, as well as a learned, man." (32 p. 85)

And economist William G. Bowen, Director, Graduate Programs, Woodrow Wilson School of Public and International Affairs at Princeton explains:

> As a general proposition, I am convinced that there is indeed an important complementarity between teaching and research. A faculty member who is himself actively engaged in research is much more likely to be able to communicate to his students both the substantive content of his field and the sense of excitement and discovery which can come from intellectual pursuits. (32 p. 85)

In a variation on this theme, Reginald F. Arragon of the Woodrow Wilson National Fellowship Foundation identifies the importance of research to effective instruction, but the communication of such information should be through person-to-person contacts with students, not in technical journals alone: Through grant support of research the opportunity is afforded for fresh interpretations to be made of data and concern for the fundamentals in a field:

> Such qualities are needed to arouse undergraduates on the excitement of inquiry. They relate to teaching and research. One might add the wish and capacity to communicate this excitement and not merely to submit articles for publication. (32 p. 134)

Some scholars acknowledge, of course, the need to balance these two functions. Political scientist David Fellman of the University of Wisconsin views criticism of the disruptive influence of research with "many grains of salt". Even though there may be some truth in this viewpoint, he considers the harm was far more than overbalanced by the advantages that accrue to higher education, including the teaching qualities of higher education. (32 p. 214)

Balance is also a key word in the assessments of the research function offered by the President of St. John's University, Edward J. Burke: "Where research is encouraged but not overemphasized, undergraduate education does not suffer but actually benefits from the research interest of the professors." (32 p. 179)

The concensus seems clear: Claude E. Buxton of the Yale University Psychology department reflects that common conviction. Research is the necessary component to all effective intellectual endeavor, including teaching.

> It is generally believed, and I am one who believes it, that research and teaching are not antithetical but rather supplemental; if research funds seduce an occasional person or institution into a reinterpretation of the scholar's responsibility, this gives reason to examine and to criticize, but not to remove support for what to other persons and other institutions seems the renewing life's blood of teaching, namely, new ideas ...and these must be generated in research of some kind. (32 p. 184)

(b) The Multiple Causes of Poor Teaching:

To contend that teaching is not corroded by research is not to say, of course, that teaching is done well. It must be admitted, some professors cannot articulate the wisdom acquired in personal research. Their analytic skills are not matched by their verbal skills. And there are many others who have neither analytic or verbal skills. We contend, however, that the artistry of lively and inspiring communication is not likely to be destroyed by faculty research, any more than those qualities are likely to be engendered by faculty neglect of research. Research may be a necessary - but not a sufficient - attribute for effective instruction.

The above viewpoint is given effective expression by a student of the California Institute of Technology, William L. Ames:

> I feel that the amount of research going on at Cal Tech and MIT definitely resulted in an atmosphere

> of increased interest and in intellectual excitement in the classroom. This was especially true when the teacher was engaged in research which was related to the content of the course. ...Of course, I have had some poor teachers. In some cases, my impression was that this was due to a basic lack of teaching ability, which would probably not be cured by spending less time on research. In other cases, the problem seemed to be inadequate preparation; but how much of this was due to the demands of research work is hard to say. ...In general, my best teachers have been men who were heavily involved in creative research and were also interested in teaching. Thus I think that the way to improve the quality of teaching is not to deemphasize research, but rather to offer incentives for excellence in teaching in addition to those for excellence in research. (32 p. 130)

A similar view is offered by Dr. James E. Davis, Director of Research for the Bernard Foundation for Medical Research:

> The implied assumption that a good research man makes the best teacher may sometimes be true but just as often false. Educators know that college and university teaching is the poorest at any level, not because the research men are freed from teaching, but because none of them are trained in the field ofteaching. ...It is not just knowing your subject that counts; that is important, but it is only half, the other half is to know how to teach it. (32 pp. 190-191)

Professor Dorothy F. Bethurum of Connecticut College's English Department similarly charges that poor teaching "goes with the territory" even in the prestigious colleges. Even a casual review of student evaluations of professors indicates the wide disparity of effectiveness:

> In the colleges I see little evidence that undergraduate education suffers from overemphasis on research. In large State universities where there has never been a strong tradition of good teaching in the lower classes but where prestige in the scholarly world is a matter of great pride, it undoubtedly does. In the University of California, for example, I know one brilliant scholar of international reputation whose teaching is lethally dull. But the causes for poor teaching in the universities are complex... (32 p. 153)

One respondent to the Congressional study, who preferred to remain anonymous, suggests that poor teaching can be attributed to all the human frailties ranging from natural indolence to sexual aggressiveness:

> Certainly it is possible for professors to become "operators" and to neglect their students for the sake of research. This sometimes happens. However, professors also, and in my experience more frequently, neglect their students because of laziness, to spend time making money through consulting or running businesses, to pursue hobbies, to chase women, and to otherwise indulge themselves in all of the frailties which beset the human race. (32 p. 33)

(c) Student Unrest and Research:

The detachment and impersonality of the classroom experience in the large universities cannot be attributed only to research. A more direct cause is the sheer size of many undergraduate classes. In the computer age, students can quickly become disillusioned with the lack of personal contact in the learning process. Supporting this view, Dr.Edward E. David, Jr., as executive director of the Communications Systems Research of the Bell Telephone Laboratories questioned the charge of student unrest being directly linked to funded research:

> If there is impersonality and poor teaching on the undergraduate level, these may well stem from the sheer size of the operations. .....informants tell me that in the Berkeley riots there were few students from the heavily supported social, economic and humanities departments. Though faculties have fragmented loyalties because of their support sources, is this fragmentation any more aggravated than that spawned by the academic freedom and the ancient split between faculty and administration? (32 p. 39)

Henry Steele Commager identifies three roots to student rebellion: custody, bigness and irrelevance. Students revolt against the anachronistic notion that the university stands in loco parentis to students who are, in reality, physically, sexually, politically, and perhaps even intellectually, like any other segment of adult society. The obsolete traditions remain of treating students like children even though the age of college students has increased:

> Not only are college students kept in a state of pupilage, they are subjected to the indignity of being treated like high school pupils, hedged in for four years by requirements of courses, credits, majors, minors, attendance, examination, all of which are, in a sense, vestigal remains from the high school.

Related to the research issue is his charge that students are

> ...fobbed off with professors who do not teach or who teach not gladly, but badly. They are often denied an effective voice - sometimes any voice - even in the conduct of their own affairs: the organization of student life discipline, newspapers and journals, the choice of speakers, even the games they play. (44)

The second pressure is the revolt against bigness, that reduces the student to a computerized number, that fragments his associations with faculty and fellow students and threatens his sense of individuality in a "kind of benevolent academic Brave New World." The third force is the lack of relevance of the existing academic diet. Such lack of relevance is attributed to professors "whoring after lucrative contracts or power or prestige."

It is clear that the entire college and university institution is under a broad general assault. The research focus, not the research function, is a target in the attack. As the

Muscatine report explains:

> For many students - both undergraduate and graduate - there has not been an adequate connection between their education and what they feel to be their primary concerns as human beings and as citizens. We need to make the connection more clear, and to replace those of our offerings that may have through obsolescense lost their contact with vital human concerns. We face the perennial danger, in an institution so devoted to professional expertise, of narrowness and provincialism. (45)

(d) How many Good Students quit Good Institutions?

The popular fashion to single out research as the major or single explanation for poor teaching and poor student morale need not be given serious attention. The "simple" version of criticism may reflect the response of parents, perplexed about the performance of their own sons and daughters. Physics professor S. DeBenedetti of the Carnegie Institute of Technology reminds us:

> I must first bring to your attention the fact that though some students and their parents will complain about the methods of teaching in research-oriented institutions, the same students and parents early compete for admission to these very institutions. I know of no student who makes decent grades in research-oriented institutions who has ever tried to move to a school where no research is carried on in order to have better teaching. (32)

(e) The Potential "Suffocating" Influence of "Teaching Only" Institutions:

There is no single mechanism that assures a uniformly effective capacity to excite student interest or intellectual curiosity. Students respond in different ways to the vast range of stimuli. Programs directed only to the style of teaching, rather than to subject matter content run aground on this reality. Certainly student responses to lecture material is not simply a 1 to 1 function of the direct attention professors give to the individual student. It is possible that the teacher who flicks his ideas out to his students, without thoughtful consideration to the logical underpinning or plausibility can induce a stampede to the library by those anxious to prove the professor's incompetence. An irritated student might be motivated to undertake studies that a more congenial classroom atmosphere might never encourage. History professor Walter P. Metzger of Columbia University broadens this thesis:

> Teaching-centered institutions do not necessarily do a better job of enlightening college students. If they have fewer novice teachers in the classroom, they may also have less able veterans on the staff. If they pay closer attention to their students, they may do so in a rather suffocating way. What a great library, a great faculty, and a great tradition of accomplishment offer students, strenuous and direct pedagogy cannot alone provide. Students gain from a cultural milieu as much as they gain from a well-manned classroom; and in this respect, the research-centered institutions have no peer. (32 p. 56)

In the same vein, Professor S. DeBenedetti of the Carnegie Institute of Technology points out that the danger is not that universities will become research factories, but that those with overswollen undergraduate enrollments will become only teaching factories.

> If the absence of research by faculty does not lead to obsolete lecture material provided by uninspired and uninspiring professors in the short run, its long run consequences for the quality of the faculty and the atmosphere of the institution are certain. The patterns and habits of intellectual curiosity are established in the early career of the young instructor or assistant professor. If his teaching and committee duties are such

> that the individual has no time for research, the neglect will establish a "tract" for the outlet of his energies with ruts that deepen year by year. Indeed, the sabbatical principle that provides for the rejuvenation of creative abilities in the seventh year may involve inappropriate timing. If the staff member rationalizes his lack of research until his sabbatical, for a full six years, his personal lack of discipline may not be sufficient to mobilize his energies for rigorous research during the sabbatical. (32 p. 45)

A student in an excellent small midwest college perceived the corroding influences of teaching-only standards for the young teacher: "It is said that once a science teacher has spent four years here he is through as a researcher anywhere. This scares quite a few good men to the larger universities -- it scares them away from teaching." (34)

(f) Alternative Sources of Competition for Faculty Time:

The research versus teaching issue is usually oversimplified by the assumption that the contest for faculty time involves teaching, research and leisure. But academic life involves more categories of activity than this; one often-neglected element is the substantial chunk of faculty time normally absorbed in committee work. The collaborative and participatory nature of most colleges and universities involves a heavy burden for all involved. The productivity in such activity may, in many instances, be limited to the improvement of morale of the faculty in being kept informed of what is going on. Against this, however, one must set the frustration of students seeking more precise information about their program status. Professor Robert Presthus of Political Science at Cornell University acknowledges the loss to undergraduate teaching represented by such committee work:

> But it should be added that the dissipation of professors' time in committee work and ceremonials means that even those professors who mainly teach do not spend as much time with the students as one might assume. It is generally true that about one-fourth of a faculty engages in research, while the rest are presumably free to teach. Yet they do not and often cannot make teaching their primary responsibility. (32 p. 80)

Indeed, Professor Howard J. Pincus of Ohio State's Geology Department identifies the problem in terms of the inadequate response of university administrators to the problem:

> Adverse effects of the growth of research avtivities on undergraduate teaching have been grossly exaggerated. In fact, diligent planning can result in improvement of undergraduate programs, particularly in comprehensive research programs. Here the finger should be pointed at unimaginative administration and not at research. University administration does very little to underwrite development in teaching. (32 p. 62)

In the Snell and Perkins study of 1958 history Ph. D.'s, they found that 46 percent charged neglect by their faculty. But interestingly, faculty preoccupation with teaching ("excessive teaching load") was held responsible for such neglect by 28 percent of the critics, with faculty preoccupation with research identified by 25 percent of the critics.

In the end, the students, not the faculty, are the major losers when research is not consciously cultivated. Writing about the campus environment, Hans A. Schmitt explains:

> The beginning of my own career shows that the teaching mills punish their students with another kind of neglect: a faculty of questionable competence laboring under conditions which make effective self-improvement next to impossible. As a result, they face an annual faculty turnover of bright young men and women who will not put up with conditions of incurable primitivity. These colleges retain only a hard core, most of whose members are content to regurgitate for thirty years, semester

> after semester, what they themselves remember from graduate school: professors of American literature who close out the season with Sinclair Lewis; professors of physics who are content that their discipline has not changed since 1925; and professors of history whose lectures leave the impression that Woodrow Wilson's declaration of war on Germany is the latest word on the origins of the First World War. (18 p. 423)

(g) Research and Teaching Effectiveness: Student Perspectives:

In the previous chapter we noted the limited devices available for objective measurement of teacher effectiveness. The most common measurement is provided by student ratings.

There are numerous criticisms of student ratings: (a) They may be biased by the "entertainment" value of the instructor; (b) they may be biased by grades; (c) they may reflect a bias favorable to the teacher in order to encourage his favorable scoring of student performance; (d) they are made by individuals not fully mature; (e) they may be made at a time when the student is not yet able to perceive the potential usefulness or relevance of material presented; (f) the ratings may be delayed; (g) sampling procedures may be sporadic, the respondents may not be representative. And behind these concerns is the possible traumatic consequence for the faculty member whose best teaching efforts may be demoralized by extravagant student criticism. As Professor Pimentel explains:

> In a normal psychological reaction, fifty glowing responses are needed to neutralize one vituperative insult from a disgruntled student hiding in his anonymity. To the extent that the instructor feels that student critiques raise a wall between him and his students, his teaching is impaired. (45 p. 212)

These criticisms notwithstanding, student ratings are likely to be perceptive and for the most part, responsible.

And the availability of published student ratings provide the opportunity for correlating these with evidence of faculty research.

In one current study, Jack B. Bresley undertook a systematic student survey of 130 faculty members in Tufts University during the academic year 1965-66. Against this he correlated data on funded research and publications of the faculty. His conclusions:

> The Tufts data strongly suggest that the faculty members who publish have higher teacher-effectiveness scores than those who do not.... the Tufts data indicate that the individuals who have sought and received government funds function exceptionally well as teachers, in the opinion of their students. The students rated as their best instructors those faculty members who had received or were receiving government support for research. (6 pp. 166-167)

E. J. McGrath, in a 1962 study, found that two thirds of the "outstanding" teachers in 15 liberal arts colleges had published at least one article recently. (18 p. 419)

And William R. Hutchison observes:

> If research activities have really been doing more harm than good to classroom teaching, the student surveys and student recommendations for good teaching awards do not seem to show it. Most of the respondents to my inquiry in fact shared the view of Dean Pearson of Bennington, who commented as follows on Bennington's thirty-year experience with student ratings: "The overwhelming evidence is that those faculty members who rate highest with the students are the most productive scholars in their field. Thereare exceptions,of course, but there is no doubt whatever of the predominant tendency." (11 pp. 434-435)

(h) The Use of the Teaching Assistant to Relieve Senior Faculty for Research:

One characteristic of the research-oriented institution is the widespread use of graduate students to handle introductory courses, quiz sessions or lab periods so that the senior faculty can secure released time for research. The "TA" system has come under attack as another weakness in the rush to give priority to research instead of instruction. At Berkeley, for example, it was found that for the graduating class of 1965, 31 percent of the total number of classes were sections regularly taught by Teaching Assistants. Of the lower-division classes, 41 percent were of this kind. The smaller the class, the heavier the representation of the TA. Sixty-five percent of the classes and laboratories of 15 students or less were taught by TA's. (45 P. 175)

There are many criticisms of this arrangement. First, the TA is not an experienced teacher; he may not be fully mature or fully comfortable with the lecture material assigned. And more pointedly, just as the faculty member is confronted with competitive pressure for the use of his time between teaching research, so is the TA. "While the faculty member may find himself divided between the demands of research and teaching, the Teaching Assistant is torn by them." (45 p. 177) He, too, may resent the lack of collaboration with senior faculty in the development of his teaching responsibilities. And he may resent the low pay, the long hours related to teaching responsibilities, and the reality that his efforts to perform conscientously for his students thwarts his forward progress on his dissertation. Capturing the short-term rewards of appreciation from students is a poor quid pro quo for the economic, intellectual, and psychological penalties he faces with his unfinished dissertation.

It is probably true that the TA is an exploited member of the academic community, with his frustrations absorbed internally (by self criticism) and downward (by neglect of the teaching function). But there is much to be said for the arrangement, quite apart from the reality that it has become an indispensable characteristic for many major universities.

First, the TA arrangement offers the student the financial means to undertake, or continue graduate education. It offers an occupational outlet for his energies that usually reinforce, rather than compete with, his dissertation research and intellectual interests. Secondly, the TA arrangement gives the young teacher invaluable apprenticeship experience. It is a component to training of obvious significance to those who feel that the teaching function is neglected in colleges and universities. Thirdly, the experience of teaching frequently becomes as much a learning experience for the TA as course or seminar work, for the prodding of student questions compels an increased sensitivity to complete understanding and clear exposition. Fourth, it is a romantic illusion to consider the senior faculty the repository of definitive wisdom. More often than not, the TA may be better informed, more alert, energetic, enthusiastic, and effective than his senior-professor counterpart. Age is not uniformly correlated with intellectual sophistication. It correlates too with obsolesence, weariness, or dullness that is derived from the monotonous repetion of lecture themes for twenty years. While there is much that can give status, dignity, and programmed coherence to the TA system, the benefits of this arrangement, both to the TA and to students, probably far outweigh alternative arrangements that would compel the presence of senior professors, regardless of competence, before all introductory classes.

(i) Some Concluding Observations

The theme linking relevance of research to teaching is offered with monotonous regularity by the testimony of this chapter. Certainly the case is made from a position of strength, for it is through research that the major advances to solve the ills of our society have been obtained. The argument that the advance of such intelligence is competitive with the communication of such intelligence is implausible on the face of it. If we define research broadly - to include even looking at familiar facts from unfamiliar points of view - the developmental and distributional phases fuse in a single activity. The mutuality of these activities become self-evident: A distribution (viz., teaching) system is meaningless if there is little or nothing to distribute. The production system loses much of its relevance if its byproduct does not enter the distribution pipelines. A case can, of course, be built for the division of labor between production and distribution functions. But what seems clear in the testimony cited in this chapter is that the distribution mechanism is threatened if its custodian is unfamiliar with new inputs that can be served into that pipeline, if the teacher is content to spew forth the "received doctrine" of "his generation". Old dogmas can be revitalized only if old dogs can be taught new tricks. The name of the game is to preserve the freshness of perspective of the faculty.

This review has pointed to the reality that the spirit or quality of the academic environment is determined by the vitality and curiosity of the staff; the spirit and methodology of inquiry is the most indispensable element in the learning process; the enthusiasm and excitement of the faculty in explorations of understanding are inevitably (if not automatically) transmitted to the student body. The learned adventure is contagious.

Good students appreciate good institutions. The scramble for admissions to the research-oriented universities is not accidental; it reflects the concensus that top-rated faculty in top-rated institutions can impart superb analytic skills to top-rated students.

The reality - and generality - of student unrest is not, in this context, a direct byproduct of research even though indirect linkages can be established. There is no convincing evidence, however, that the incidence of unrest correlates (or can be correlated) with the incidence of research preoccupations of faculty. The teaching-focus of State Colleges in California, for example, has not insulated the State College campus from student revolts. If research is alleged to be a prime cause of student unrest, it will obviously require something more than affirmations of the Donahoe Act identifying prime State College teaching obligations to remedy this problem.

If it is true that research, carried to excess, leads to the "research factory" with a detachment from teaching, so certainly the opposite condition can lead to the "teaching factory" characterized by heavy teaching loads, a faculty with gnawing self-doubts about its capabilities because of its teaching preoccupation, and a student body cynical about its institution, its faculty, its courses.... and ultimately about itself. Students of undetermined potential properly resent being enmeshed in a second class system with third-rate teachers offering fourth-rate materials.

The persuasive empirical case for research rests on student evaluations themselves. More often than not, the better-rated faculty are those who are involved in research. What more convincing case can be made for the interdependence of research and teaching?

We conclude, then, that the popular charge against research is not convincing. It is a criticism that is found, more often than not, in the popular literature; it reflects a simplistic approach to complex issues. It is built on the innocent assumption that one can be articulate, inspired and inspiring if one has requisite skills in information.

APPENDIX C - Perspectives of California State College Faculty and Administrative Staff: Part I

This section summarizes the testimony collected from the site visits to selected California State Colleges, and follow-up correspondence, largely with the College administrative personnel. No serious attempt was made to quantify the viewpoints. In essence, we attempted an opinion poll of issues central to the research and teaching functions of the State Colleges. We have attempted to minimize "spectator contamination" of the following materials by providing a rather complete account of the correspondence with the college presidents. The notes taken during site visits were intended to represent the concensus of campus attitudes. Because no effort was made to secure complete word-for-word transcripts of those discussions, it is possible that the summaries may have neglected some minority viewpoints. A review of the notes taken on the campus visits and the correspondence reveals, however, a remarkable concensus of viewpoint, and it is quite likely that the following summary understates the measure of that concensus.

Four central themes are covered in Parts I and II. (1) The links between research and teaching as perceived by faculty and administrators of the California State College system; (2) The recruitment and faculty turnover difficulties experienced by the State College system; (3) Student ratings of faculty and the possibility of student unrest aggravated by the research orientation of the faculty and finally (4) The Research Focus, including improved collaboration with the University system, appropriate to the State College system.

Within each of the four sections, various themes related to the general topic will be identified. Each subsection will identify the thrust of the testimony, followed with representative testimony on the point. A maximum effort has been made to "rest the case" on the testimony of the interviews and correspondence, with minimal effort to embroider those themes with editorial commentary.

(I) The Links Between Research and Teaching in the State Colleges: An Overview:

(a) The division of labor specified in the Donahoe Act. Testimony was collected on the relevance and application of the standards to guide State College research in Title 5, California Administrative Code, Section 40000. That provision states: "Faculty research is authorized to the extent that it is consistent with the primary function of the State Colleges and the facilities provided for that function."

In almost all site visits, the faculty teams responding to the query about the usefulness of that focus were extremely critical. Indeed, most did not want to dignify that focus with prolonged discussion or debate because they felt it was obvious that all research had relevance to the quality of teaching. The following adjectives were used to describe the existing code: "vague" "unwarranted" "meaningless" "restrictive" "patronizing" "permissive" "obsolete" "artificial" "phoney" "quaint". Two college presidents allowed, however, that the existing definition seemed appropriate so long as it was interpreted more liberally.

The critical commentary follows:

> The statement is basically not definitive in specifying either the types of quantity of research which should be the prerogative of the State Colleges.
>
> There is no such thing as a good teacher who doesn't do research. The Donahoe Act interpretation of research is based on a narrow view of research and teaching. We should not try to answer the question, that is, to distinguish between teaching and research or university research and state college research.
>
> I think that the statement cited is essentially meaningless: "Authorized" does not mean supported, since no time, equipment, or material is budgeted for research. "Authorized" does not mean permitted, because research was carried on in much the same way as at present before this code section existed.
>
> A redefinition of "research" is obviously needed, with a clearly defined interpretation of the appropriateness of support for research, scholarly and creative activities. At present, in spite of interpretations and restrictions imposed by various state agencies, the California State Colleges have accomplished "en toto," a remarkable volume of work in these areas. A realistic appraisal and the establishment of a clearly defined guidelines would increase these contributions many fold. All evidences point to a greater involvement of the Federal Government in all phases of higher education. If the California State Colleges are to

assume their rightful place in the partnership with the University of California and maintain a competitive position for Federal funds, it is absolutely necessary that the Donahoe Education Act and the Administrative Code be amended and expanded in view of changing emphasis on research in the State Colleges.

The definition would include that research which (1) relates to the instructional program, (2) enriches the educational opportunity available to the student and (3) affords to the faculty member an opportunity for professional development and a means of making scholarly contributions in his specific academic discipline.

The faculty panel proposed that the wording of the Donahoe Act be changed to substitute for the word "authorized" the word "encouraged." The implication now is that research is "allowed" if the faculty member can establish that such research will advance his teaching effectiveness. This posture is patronizing. Research is a critical and indispensable complement to instructional effectiveness. Research must be encouraged by a positive legislative mandate.

The primary function of the California State Colleges is instruction. However, it is common knowledge that research, together with the production of scholarly and creative works, comprise the foundation upon which excellence in instruction is based. The California State Colleges, in interpretations of the Administrative Code, have been unduly restricted in their efforts to develop research as a necessary concomitant of scholarly and creative activity. The absence of commitments in faculty time, facilities and support has resulted, too often, in the colleges functioning as passive guardians of the traditional bodies of knowledge. (italics added).

There should be no distinction between research at UC and research at CSC: they differ only in amount of funds available.

The persistent analogies between research at the University and at the Colleges are based on nothing in reality. The State Colleges are not and will probably never be the "research monsters" that so much disturb legislators about the University. If legislators don't approve of the research efforts of the University, they ought to discuss this with the University,

> not create a straw man at the Colleges. It should be noticed that the research budget for higher education in California is divided 99 per cent to the University and less than one per cent to the Colleges.
>
> Such distinctions would be artificial and would have deleterious effects upon the quality of the educational process and the caliber of faculty recruited to the State colleges.

The one favorable statement follows:

> The statement of the Donahoe Act is in my opinion clear and authorizes faculty research that can appropriately be done in the Undergraduate and Master's Degree Program, at a level consistent with that which is done on other campuses with a similar statement of mission. Thus we are not talking about the "big science." We are talking about individual faculty project science and some efforts at interdisciplinary cooperative team research. This is completely appropriate and I see no problems.

(b) The link between research and teaching:

There was no testimony offered in any of the site visits or in any of the correspondence to support the thesis that research detracted from the effectiveness of the teaching function. Teaching required supporting research activity:

> ...Every effort should be made in so far as resources exist to assure that students have equal opportunity to pursue equivalent educational goals whether they begin an Undergraduate Program on a two-year, four-year, or university campus. There should be equivalence in scholarship as a base of parity for students. We cannot afford "separate but equal" approaches on a cultural basis any more than we can afford them on the basis of race.
>
> You can't separate research and instruction. You don't have good instruction without research.

It is our thesis that the research and teaching function are inextricably bound together and thus inseparable. A full spectrum of research and creative activity is required to maintain an academic program of significant stature.

...I urge a thorough reconceptualization of "teaching" so that research is more appropriately recognized as the "teaching aid" it usually is.

Faculty research activity cannot successfully be dichotomized into that which is "related" to the teaching function and that which is not. Basic scholarship is a pervasive function. The last thing we want in the undergraduate campus is to "separate research from teaching."

It is romantic to assume that the faculty can teach well unless the faculty is on the cutting edge of research. He must be lively, articulate, sensitive, aware and informed. He must constantly upgrade his skills to avoid obsolescence. We cannot prevent obsolescence of our mature student population through the involvement in academic programs supported by staff that is imparting obsolete information. The vitality and competence of the staff is a direct function of its research interests.

Strong efforts toward improving the research and related scholarly and creative activities would bring to the California State Colleges greater capability in intellectual criticism, competition and change. From these, in turn, would come curricula revitalization and excellence of scholarship which would keep instruction fresh and vital.

...research is not a program; it is a function of higher education. In our view, research is a function, in a healthy program, of the same value, no more, and no less, as instruction, curriculum planning, course development, fiscal planning and control, etc. In other terms, it appears unsupportable to separate a necessary and vital function, any essential function, from an educational program worthy of the name. This rationale undergirds the puzzlement, within and outside the State College system referred to above: "How can one support to operate a first-, or even a second-class educational program with the vital and integral function

> of research shorn away?" Finally, and briefly, since this is not the place to argue the self-evident fact, even the most disinclined of us would hesitate at taking the position that man, particularly academic man, has done all the necessary or desirable research into the human condition save that which must be carefully saved for the University of California to finish. Or, one might well conclude from the language of the Master Plan for Higher Education that research somehow represents a scarce commodity market and that we are in danger of exhausting our supply of it.
>
> Faculty research cannot be dichotomized into that which is related to the teaching function and that which is not. If a man's competence is not in the field he is teaching, he has been misassigned.
>
> All research is related to instruction.

A theme related to the close relationship of teaching and research was the historic function of State Colleges serving as normal schools or teacher-education institutions. This stigma or stamp had to be minimized or eliminated:

> I can see a problem ... if "consistent with the primary function of the State Colleges" etc., is interpreted in light of what these colleges once were. They were once teachers colleges and like many others across the country, research was not expected of them. This is also one of the historic problems which those colleges faced. Generally, across the country they were unable to recruit top talent. We have reaped the benefits of this in the poorly trained teacher in the elementary and secondary schools of the country, and millions and millions of dollars have been spent in an effort to correct the situation. Any further effort to extend that misinterpretation into the future would be compounding the problem.
>
> A decision must be made regarding the status of faculty in the State Colleges. We inherit a teachers' college tradition, represented by the fact that the colleges are often identified

> as "schools" rather than as centers for advanced study. The State must decide if the State Colleges are to be centers for professional training, or whether the integrity of the faculty and the content of academic programs are to be considered analogous to high school operations.
>
> The attitude that one can differentiate between research at UC and CSC is perhaps based on a cultural lag: the association of the State Colleges with teachers' colleges.

But all testimony gave support to the following thesis:

> ...a professor of English, history, chemistry, mathematics or creative arts in a State College faculty should be encouraged to carry on research activities in his field of competence. Without continued research and allied scholarly activities, his effectiveness, expertise, and authority as a professor are limited or even impaired.

(c) Distinguishing Elements in State College and University Research

Almost all of the persons interviewed and responding to the schedule of questions through correspondence acknowledged that there were some distinctions appropriate to the research functions of the colleges and the University. First, the university must be expected to sustain research directly linked to professional programs; secondly, they must be expected to extend research activities involving use of elaborate hardware and extensive engineering overhead; and thirdly, the universities must be expected to sustain their attention to pure research issues.

In defining activities appropriate to the State Colleges, attention was given, first, to research that was problem centered. Secondly, much of the research should involve student participation and be linked to existing academic programs and courses. Third, such research as is cultivated in the colleges should be strongly inter-disciplinary or multi-disciplinary. The State Colleges should press for the cultivation of joint Ph.D programs with the University system; and the State College system must be expected to extend research directly linked to existing professional degrees and existing graduate programs leading to the master's degree.

Let us turn, then, to the testimony supporting these various themes:

(i) University research supporting professional programs:

> Research in the State Colleges should be permitted in the subject areas and levels for which instruction is authorized. Such research by students would relate primarily to instructional programs conducted at the bachelors and master's levels, and research by faculty should relate to such programs. Certain subject fields such as medicine, dentistry, veterinary medicine, law, etc., are reserved for the University. However, there seems no reason why qualified and interested State College faculty should not pursue research interests related to State College instructional programs within the time and facilities available.

The most frequently mentioned distinction between the mode of research in the two systems related to the heavy investment required in the supporting hardware of university research:

> The distinctions ... relate primarily to "big science." Our faculty should have access to a linear accelerator, but I don't see that they have need for one on the campus. I don't draw a hard line, I think that the limitations and differences have to be consistently interpreted and somebody in administration has to be paid to make those kinds of decisions. I don't think that they can be made in the form of a blanket regulation.

There are differences in UC and SC research. For example, building a Lawrence lab isn't within our mission.

In many areas or fields, I would think that no distinction should or could be made between the kinds of research conducted by the State Colleges and by the University. By virtue of certain unique collections, equipment, or facilities, the University would be expected to be pre-eminent, if not exclusive, in certain areas.

There is no research which can be unique to CSC (exceptions: research in medicine, law, etc., is possible only at UC).

...it is clear that there are many dimensions of so-called "big science" research which are not appropriate for the two year or four-year campus. In the sciences, many of these dimensions are self-limiting due to limited availability of funds.

Only at the extreme end of the spectrum is there a difference in the research of the University and State Colleges, e.g., Lawrence Radiation Laboratory.

Between these limits of being neither forbidden nor supported, research can be of any type not having such particular needs in manpower, space, equipment, or published or documentary materials as to be impossible. Even when suitable equipment is available, the instructional program normally has priority in its use. Nonetheless, the research output of the State Colleges is impressive.

State College research should be more limited than that carried on at the University. There should not be a duplication of effort and facilities. For example, the State Colleges should not expect to have their own radiation labs or linear accelerators, duplicating facilities at the University. But the State Colleges need lab facilities, including electronic microscopes and other expensive hardware to support instructional activities in the sciences.

(ii) The Focus for College Research:

More extended treatment will be given to the orientation of State College research in the final section of PART II. State College faculty and staff were asked to differentiate, if possible, the focus of State College research from University research, and the following views were offered in this context. First, attention was given to the fact that graduate degrees are awarded by the State Colleges with those programs requiring research support:

> In the field of graduate instruction, faculty research and creative activities are especially necessary and vital concomitants of master's degree programs. Twenty-five percent more master's degrees were awarded at our college in 1967-68 than in 1966-67. All evidence indicates this rate of increase will be sustained or accelerated in the immediate future.

Secondly, the joint-degree program warranted further extension and support:

> As the colleges move toward the development of Joint Doctoral degrees with branches of the University of California, the need to further develop research, scholarly and creative capabilities are self-evident. Only through an understanding of the needs for support for research can the potentials present within our college and her sister institutions be brought to fruition.

The need to link research to contemporary social issues also drew support:

> There will be a new curriculum next year ... It will be problem-centered and research-centered so faculty will be doing research in that curriculum. Research is for the enhancement of faculty. It is good for the students. It should not replicate certain UC programs. I go along with the joint Ph. D., but I think we can

> offer the Ph. D. ourselves in some fields. There can be given Ph. D's by the colleges if they are interdisciplinary Ph. D's; those directed toward teaching. We need research facilities and encouragement to the faculty, especially in the sciences. I would, however, keep the Donahoe Act concerning not replicating UC programs. I would offer an interdisciplinary Ph. D. in the social sciences... It is okay to offer disciplinary Ph. D. degrees in cooperation with another college, perhaps a private college such as Santa Clara, or another State College.
>
> The State should provide funds for research projects that are closely related to instruction and which deeply involve students. These projects will give students in-depth study into their subject matter fields. They will also learn the techniques of investigation, creativity and problem solving under the close scrutiny of an expert in the discipline. We fully supported this idea and have presented it to the Legislature.
>
> We need research in pedagogy, and we need research that will involve the students themselves. The next step would be to encourage faculty interrelationships, joint planning, and research in both teaching and subject-matter areas. This latter would be more difficult to accomplish and would take time. Levels of confidence would have to be generated.
>
> In most contemporary fields of knowledge, teaching is meaningless without some practical application to the real world. The trend in higher education is toward more and more laboratory courses, practica, field-work courses, studio instruction, internships, etc. This is expensive instruction, and hardly well-supported in the appropriations to the State Colleges. As a consequence, academic departments are turning increasingly to sponsored project activity as an avenue to outside funds for this instructional purpose.

A few of the respondents contended that no distinction should be made in the research orientations of the colleges and The University:

> No distinction should be made between the kinds of research conducted by the State Colleges and the University of California.

> No meaningful distinctions can be made in terms of the kind of research suited to State College faculty. It is really a question of degree rather than kind. This is obviously so since the faculty at our college have demonstrated their ability and interest in teaching and research in spite of the impossible teaching load, lack of facilities and encouragement.

In that same spirit, the point was made that the creative impulse must not be constrained by artificial guidelines that would predetermine the appropriate focus of intellectual adventure:

> We therefore, would argue that in view of the manifest need for research, for greater and greater knowledge of our environment, our past, our future, ourselves, there is no supportable rationale for restricting this function to any particular institution. Let talent and inclination do that if it will. Restrict and pinpoint the most advantageous locations for programs; but do not force distorted program development by starving or prohibiting vital program functions.

(d) Some Concluding Observations:

The interviewed faculty and administrators in the State College system were almost uniformly critical of the statement on the appropriate focus for State College research. The statement was considered vague, non-operational in that distinctions could not be drawn readily between research that had relevance to teaching from that which did not. It was patronizing and permissive at best, and its total effect was inhibiting, restrictive and negative. Probably much of this sentiment was not inspired by the literal language of the act so much as the charge that trivial funds had been made available to the State College faculty to support instruction-related research. Faculty cynicism and criticism in this regard was much more sharply stated than in the commentary offered in correspondence with college administrators, although criticism was rather uniform from all sides.

There was even more uniformity of conviction, however, on the viewpoint that research was inextricably involved in effective teaching. The research function was an integral part of any vital, effective academic program. The attempt to differentiate programs by denying colleges support for the research function was really to create a second-class or second-rate academic operation.

But distinctions could be preserved between University and State College research activities. The former required unique research activities related to professional programs such as law, medicine. Doctorate programs had built-in research tracks. The University should continue its excellent work in the areas where heavy investment in research hardware was required. The University should extend its attention to "pure" research and speculative activity.

The following characteristics were advanced as being appropriate to State College research:

(a) Research that is problem-oriented or linked to the major social and economic issues of the day.

(b) Research that is course-oriented, so that it could be linked directly to existing academic programs.

(c) Research that involves inter-disciplinary programs.

(d) Research that involves students.

(e) Research that supports joint doctoral programs with the University or other institutions.

(f) Research that involves minimal investment of capital equipment.

(g) Research that involves the pedagogy of communication.

(h) Research that involves field work, internships, work-study combinations, laboratory studies.

II: Recruitment, Faculty Turnover, and the Role of Research in Sabbatical and Creative Leave Policies:

In this section, we shall review testimony involving the impediment of the State College teaching schedule to successful recruitment activity, the task of holding "good" faculty, and the attention given to research in promotion, tenure, sabbatical and creative leave policies in the State College system.

(a) Recruitment Problems:

There was uniform acknowledgment of the problems of recruiting ideal faculty to the State College system. However, the absence of research potential was not held to be the most important single cause of recruitment problems.

Two colleges acknowledged that because they were recently established, they had not yet had time to establish their academic status. As the testimony below indicates, othes pointed out that the lack of research opportunity was but one of several circumstances discouraging serious attention to employment in the State Colleges. Low pay, together with the heavy teaching schedule, the lack of secretarial support, the absence of necessary research hardware, were additional factors contributing to the problem. The testimony follows:

> Several instructional schools report difficulty in recruiting faculty because of the combination of heavy instructional load and little research activity. These same factors are important in accreditation in several areas, such as Engineering.
>
> The faculty panel reported difficulty in recruiting promising young talent. First, with limited travel funds, it was not possible for each area or discipline to be represented at the appropriate national conventions of professional meetings. These meant that a "delegate" recruiter had to spread his energies over several fields and would not be sophisticated in his assessment of potential candidates in areas outside of his own field. As a consequence, departments could not secure a firm reading on potential talent. Second, most candidates who had promise had several alternative job prospects that offered less of a teaching load.

One departmental chairman reviewed his correspondence with potential appointees to identify reasons given by faculty for refusing State College appointment:

1964: Professor A: Went to the University of South Dakota. "The teaching load at -------- was the major disadvantage I saw and I imagine that will be modified in the future."
1966: Professor B: Went to work at NCAR, after showing great interest in coming to our college. Reason given: "I want to continue to pursue the research I have begun at Penn State and NCAR will provide much better facilities (e.g., a large computer)."

1967: Professor C: Accustomed to teaching only 6 units at UCLA.
1968: Professor D: Went to the University of Texas from the University of Chicago. She did not accept our offer because of heavy teaching load (only 6 units at the Univ. of Chicago) and low starting salary.
1968: Professor E: Went to University of Oklahoma. He was offered a full professorship with a salary of approximately $20,600. In addition "their department was provided money for recruiting and interview purposes, so I was quite familiar with my future environment before accepting the offer."

Another respondent acknowledged the problem of recruiting administrative personnel:

> It is very definitely true that the teaching focus limits our State Colleges in recruitment. I am at the present attempting to attract two chairmen who are reluctant to move and have so stated that this is part of the problem.

The variety of factors discouraging serious attention to offers was mentioned in much of the testimony:

> Teaching load is one of the factors which makes the State Colleges less competitive with many institutions, although salary level would no doubt be more important in terms of recruitment. One dean suggests that the priority of factors is salary level, teaching load, and then faculty research.
>
> In those cases in which reasons for rejection are explicitly stated, the teaching load is usually among the major factors mentioned, and frequently is given as the primary cause.
>
> Able young faculty candidates with degrees from major distinguished universities seeking positions through which they can become distinguished professors through research, publication and teaching are not interested in accepting positions in institutions where primary emphasis must be on teaching, where adequate research facilities are not available,

where sophisticated computer services are not available, and where tenured colleagues are primarily teaching oriented. The situation is so serious that we could reasonably state that this college does not attract any of the first rate candidates for their faculty at the assistant professor and associate professor levels.

We're having an extremely difficult time because we feel we must attract mature, able leadership. We want a man who is in phase with contemporary analysis, who has been involved with research, and who could offer guidance and support to the department in both educational programs and research as appropriate to those programs. This man should also be able to assure a quality commitment in program development under the limited Masters Degree Program which we have at this time. Both our salary scale and 12-hour work load are against us in recruiting such a man.

...we have a difficult time attracting administrative and faculty leadership that can fulfill the expectations which California has placed upon its State Colleges. The expectations have been placed on a program base, but these expectations are not in phase with the current support levels and the definitions of the professional responsibilities that are necessary to meet and fulfill these expectations. Thus, with the current limited definitions, we are limited in the quality of the program which we can develop and offer on the State College campuses.

The 12 hour load has been a limiting factor so far as some possible candidates are concerned. It has not been a prime cause of rejection of offers because some candidates remove themselves from consideration before the discussion even reaches the issue of the teaching load. Thus, in some cases this removal has come so early in the proceedings that it does not appear in any kind of tabulation.

Faculty want to publish; given this desire, the 12 unit load is too much.

By far, the most serious limitation in recruiting is the 12 unit teaching load which limits the opportunities for research. This is an even greater limitation than salaries right now.

We cannot give an accurate estimate of the seriousness of the problem. Good people are just not interested when they learn of the heavy teaching load. Negotiations don't get beyond the talking stages. We are definitely having trouble hiring top people.

In recruiting staff, the "mix" of job duties expected of State College faculty is often a significant factor. In a competitive market, many well-trained faculty elect to go elsewhere. Active and imaginative recruitment has resulted in a better than average success ratio when compared to system-wide averages.

In recruitment, many new, terminally-qualified staff express the view that the 12 hour week credit load imposes a very real limiting factor on the opportunities for research. Without documenting the seriousness of this, it would appear to be a prime factor in 50 percent of the prospective staff who reject offers of employment.

In one informal survey recently completed by the School of Letters and Science, approximately 40 candidates who rejected job offers listed lack of research opportunities and excessive teaching load as major reasons for declining the position offered. This is out of some 70 faculty openings. These results are representative of the entire college. The number of prospective faculty listing these reasons has increased markedly in the past several years.

The requirement of 12 units of teaching per week has in fact been interpreted by a significant number of prospective candidates as limiting opportunities for research. This has been true in our experience both with younger candidates who have wished to pursue lines of research initiated by their doctoral dissertation, as well as with older, more seasoned candidates who have stated that a lower teaching load in other institutions made research more feasible and job offers more attractive. The Deans of the three schools of the colleges (Humanities and Fine Arts, Natural Science and Mathematics, and Social and Behavioral Sciences) all report that recruitment has been impaired by this factor and that in each School a number of prime candidates for positions have declined further consideration of a position being discussed. It should be pointed out that the college is planning to

> initiate a significant number of Master's degree programs over the next several years and that faculty members who have had experience in directing researches as well as in carrying on their own researches form a vital element in staffing graduate programs.

(b) Holding Distinguished Faculty:

There was some mixture of opinion about the problems State Colleges were having in holding their distinguished faculty because of the more attractive alternatives in other research-oriented institutions. First, it was acknowledged in interviews (but not in written communications) that a portion of the State College faculty was not interested in research. Secondly, the point was made that frequently senior faculty became much involved in the administrative structure of programs and, because of such involvement, were reluctant to view alternative employment prospects:

> Faculty are encouraged to become actively involved in all phases of academic planning and administration. Due, in part, to this involvement, a high proportion of distinguished faculty remain on campus.

Thirdly, one college reported the advantage of being able to attract and hold faculty because of the innovative character of planned educational programs and the opportunity to get in on the "ground floor" in the design of new programs:

> To a large extent the initial faculty in the opening years of this institution have been attracted by the innovative academic plan and by the opportunities offered for professional growth in a new college. These advantages, it is expected, may be outweighed in future years in the minds of many people by the impediments towards research now existing.

Fourth, just as there were a variety of forces complicating successful recruitment plans, so it was acknowledged that research must be regarded as only one factor that might encourage existing faculty to leave the State College system:

> I should say that our loss of distinguished faculty has been minimal, and in those cases that might fall into this category, the reasons were varied, and lack of research support would be only one of several factors.

Finally, one would not expect panels of faculty to testify that the lure of more attractive teaching positions has drained off the "cream" of the academic crop, for this would leave the clear implication that the respondents themselves were intellectual lightweights working with intellectual lightweights. Nor would one expect any self-respecting college administrator to acknowledge his leadership function was confined to a second or third-rate intellectual team.

The above considerations notwithstanding, there was more testimony alluding to the loss of high-quality personnel than testimony about the loyalty of quality faculty to the state system:

> Our problem is that the potentially distinguished professor leaves before he attains that status. If we are able to lure a distinguished potential researcher to our campus, he soon discovers that the lack of his colleagues' interest in research, inabilities to provide adequate research support, the lack of differential financial and promotion awards for distinguished service, the inability to gain national attention due to lack of travel funds, and the image of the institution, all legislate against his reaching his potential and he soon seeks a position elsewhere before he achieves his maximum productivity.

> It is becoming increasingly difficult for this department chairman to hope to build or maintain the quality of our departmental teaching staff. I have recruited some very good men who, after several years, and even a promotion in most cases, decide that they must leave our system because it is killing them professionally. The 12 hour teaching load is the prime culprit.
>
> We have been unable to recruit faculty members with a strong research interest. Some young faculty members with very promising potential have left to work at institutions with more research orientation.

In correspondence with the State Colleges, the invitation was extended to the respondents to identify distinguished individuals who had left their colleges in circumstances that made it clear that the research environment of the State College was a prime consideration. Four colleges offered the following list of faculty members:

Name	Field	Location of New Job
S. McSeveney	History	Brooklyn College
G. W. Domhoff	Psychology	U.C. at Santa Cruz
D. G. McTavish	Sociology	University of Minnesota
A. Reisman	Engineering	University of Wisconsin
W. R. Carper	Chemistry	Wichita University
R. Cathcart	Speech	Brooklyn College
S. Stanley	Anthropology	Smithsonian Institute
B. F. Dukore	Speech	Stanford University
J. Gundersen	Geology	University of Arizona
R. L. Meyer	Biological Sciences	University of Arkansas
Dean A. Dudley	Business	Louisiana State University
John Bachman	Physical Education	Macalester College, Minn.
D. Cresswell	Mathematics	Idaho State University
J. G. Martin	Psychology	University of Maryland
Thomas Hall	Chemistry	University of Georgia
E. Monts	Home Economics	University of Minnesota
J. M. Smith	Philosophy	University of Washington
W. K. Walton	Speech	University of Washington
G. H. Keiffer	Biology	University of Illinois

V. Baker	Geography	University of Arizona
R. Allen	Business	Creighton University
G. Haggard	Mathematics	U.C. at Santa Cruz
G. Roussas	Mathematics	University of Wisconsin
W. Sills	Mathematics	U.C. at Riverside
J. Troutman	Mathematics	Syracuse University
R. Vogt	Mathematics	Canadian University

A few of the respondents described the circumstances surrounding the departure of prized faculty. One explained: "Though the resignations have been cordial to me and to the department, they have been very depressing." Another described the departure of a professor in biological science:

> Professor A recently resigned and accepted a position at the University of Arkansas. At our college, he was an Assistant Professor. He had no graduate assistants, and only a small amount of research assistance was furnished through the work study program. He was forced to use his office for research, and specific research equipment was unavailable. By contrast, at the University of Arkansas his rank will be Associate Professor, he will have two graduate assistants, one research assistant, a laboratory with temperature control rooms for research, plus an initial allotment of $10,000 for equipment. In addition, his teaching load will be 6 credit hours instead of the 12 required here.

Another respondent reproduced a letter of resignation:

> My reason for this resignation is that I have been offered a teaching position at ------- University. Although this position does not represent an advance in salary over my current position here, it does represent a reduction in teaching load and an increase in laboratory space for basic research in areas of interest developed in my Graduate training.

(c) Faculty Research in Promotion and Tenure:

Standards employed for promotion and tenure activities did not reveal unexpected information. The concensus is well represented by the following statement:

> The criteria applied by the faculty committee of this school for appointments, and for promotion and tenure are based primarily on professional criteria that would be similar to those on most campuses. They focus heavy-weight upon the responsibility of the individual man to demonstrate his intellectual figure and commitment in both his teaching and in his research activities. This was not a "publish or perish" analysis, but it was felt that communication to one's peers through publication is a major part of the responsibility.

The testimony indicated that teaching skill was a necessary - but not sufficient condition to assure promotion and tenure. Instead of giving formal attention to publication in every case, mention was made of "professional growth." It is probable that publication is given more attention than is acknowledged by the ordering of criteria, particularly in those situations where the competitive reality required attention to the publishing and promising faculty member with bids from other colleges or universities. A sampling of testimony follows:

> Research is important in promotion and tenure when qualifications are otherwise equal. Teaching is the primary consideration for promotion and tenure. Teaching is evaluated here the same as every place else, in a variety of ways, and in no standard way.
>
> We evaluate faculty members on the basis of the professional growth; we expect them to publish.
>
> In the evaluation of a faculty member for promotion, consideration is given to the nature and quality of each of the following criteria:
> (a) teaching effectiveness
> (b) academic and professional preparation and experience

(c) contributions to a field of learning
(d) contributions to the teaching profession
(e) participation in school and/or college activities including committee work and student advising
(f) community activities
(g) publication and related activities

One college testified that an impressive publication record might allow a faculty member to be considered for the rank of associate or full professor even though he had not secured the doctoral degree. In this "unusual" circumstance, the professor must have "attained a position of eminence in his field because of his contributions to research and theory" with such evidence for eminence manifested by publications in learned journals and by reviews and citations of his works by recognized scholars and critics.

(d) Sabbaticals:

Fragmentary evidence was obtained on the frequency of sabbaticals awarded State College faculty members. One college offered the following schedule:

Year	Fall	Spring	No of FTE Faculty
1963	7	-	219.6
1964	8	7	229.2
1965	5	7	256.7
1966	4	6	307.3
1967	8	7	363.0
1968	-	5	395.9

If we assume the same number of sabbaticals were available in the adjacent semester for the two years with unrecorded numbers of sabbaticals in one semester, the ratio of year sabbaticals to faculty ranges from 28.7 to 79.2. Another college provided the following schedule:

Year	Number of Sabbaticals	FTE Faculty
1963	1	20.5
1964	1	34.2
1965	2	56.2
1966	2	63.7
1967	3	92.4
1968	3	100.0

Thus, the approximate ratio is one sabbatical for a range of 20 to 40 full-time equivalent faculty members.

These ratios are, of course, low when set against the traditional policy of providing a seventh year of leave following six years of service. But the low ratio could be biased because of new colleges recruiting fresh faculty without sufficient service to warrant the sabbatical award. But one faculty panel testified:

> The sabbatical program has not worked well in the State Colleges, mainly because sabbaticals are not uniformly available. A recent survey indicated that on the average, the State College faculty member enjoyed a sabbatical every 17 years.

That same group also offered the shocking statement that, with recent efforts to reduce the backlog of sabbatical obligations to the faculty, it was found that some faculty did not want them. The academic dean participating in this discussion explained:

> To me, this is one of the most tragic commentaries on the State College leave policy. These faculty members were bewildered when confronted with the opportunity for a

> research sabbatical. Intellectually, these faculty members were dead. And I suspect the system did its part in stifling the creative potential they once had for research and development. This is really tragic.

(e) Creative Leaves and Special Leaves:

The discussion about "creative" and "special" leaves centered on administrative complications in awarding those leaves, and the rather modest contribution they offered when consideration is given to the backlog of faculty interest in research. The creative leave program, however, drew considerable praise:

> The special leave program for creative research is one of the best programs in years; it has done much to revitalize faculty hopes for research within the State College system.

But again, the criticism was made that these make a modest contribution in supporting faculty research interests.

> We had ten creative leaves last year and 55 regular sabbaticals, which is approximately five per cent of the 1,050 F.T.E. faculty in our college.

> Last year there were 20 applications for the three research leaves available.

Frequent mention was made of the need for flexibility in the administration of the special leaves, particularly to give colleges the option of using funds for "released time" to allow part-time attention to research:

> We are obligated to give full-time leaves on a one semester basis to the faculty. We would like to have the discretion to award half-time research leaves for a single semester or for the year. We need more flexibility so that we can adjust to the peculiarities of specific research topics. Some projects can be

advanced effectively if the faculty member has one or two courses of "released time."

The regulations governing the conditions of allocation of these leaves need to be modified so that less than full-time leaves could be awarded. This would allow the planning of research projects with more flexible time requirements and the possibility of granting part-time leaves to more faculty members. Since the number of leaves made available is very small, at the most eight full-time one-semester leaves, this could not possibly be used for a general change in the staffing formula. This fear appears to be motivating the full-time requirement.

We need more flexibility in providing released time for research (more leaves for research or creative activity are needed) and more money for sabbaticals, conference attendance, and salaries.

The Chancellor's Special Leaves for Research or Creative Activity ... consist of full leave for the spring semester at full pay. Salary for the replacement of the faculty member granted leave is provided by the budget for the State Colleges. Last year three such leaves were available here, but the committee does not yet know whether the new budget contains funds continuing this program. Recipients do not have to remain in the vicinity of the college. On the other hand, there are no support funds available from the program for travel, equipment, clerical assistance, and the like. Plans for publication of results is desirable. The Chancellor's Special Leaves cannot immediately precede or follow sabbatical leaves. Only full-time State College Faculty members are eligible; the doctorate and tenure are not requirements.

The research leaves are awarded on a merit basis which means that a young, new professor with a good idea can get a research leave, even though the sabbatical program is backlogged.

The State College should continue to seek State support to expand the program for Special Leaves for Research on Creative Activity. These leaves provide a block of time

> (full-semester) to a faculty member to pursue a particular research project. They are of a tremendous help to an individual who needs time not necessarily money to complete a project. These leaves have made it possible to retain some of our top quality personnel.

When testimony was volunteered on the role of foundations to administer research funds, evidence was fragmentary. But it was clear that there existed subterranean channels of research activity with funding from "outside" sources, operating on occasion through semi-autonomous administrative agencies. The expansion of these foundations is a tribute to the vitality and enterprise of the State College faculty and should puncture the legend that state college faculty have neither the capability or interest in research. It is clear that the time is now ripe for thoughtful attention to be given to the role of the research foundation as an integral part of the academic operation of the State Colleges. The integration of such foundation operation could be speeded if (a) the legitimacy of faculty research, in all of its dimensions, were warmly sanctioned in public policy; (b) the overhead allowances secured by non-State funding were not threatened by State policies that claimed part or all of such overhead; (c) attention was given to the opportunities foundation funding provides for linking student-faculty research into the academic program. Behind these considerations is the natural anxiety of the faculty that the enterprise they display to secure research funding will simply involve a payoff to the State Colleges, or the State, without any opportunity for liberalized pay, liberalized secretarial support, liberalized travel allowances and so on.

Some of the complexities and issues involving "special" awards for research are suggested by the following testimony: As one might expect, complaints were frequently volunteered about the lack of coordination of administrative support for research interests undertaken at the initiative of the faculty.

> We need a Dean of Research who reports to the President. He could promote research on our campus through three activities: (1) report to the community about the research potential of the faculty resource; (2) apply for institutional grants to provide equipment and other hardware for research; (3) establish an office that would prepare proposals and generally advise faculty on the effective strategies for securing research funds.
>
> There is no coordination of contact with the central office on Wilshire concerning research. Since research is not part of what the State College is supposed to be doing, there is no action in that area.
>
> The entire C.R.A.S. office expense, including salaries and secretarial support, is funded from overhead from the foundation. Some Federal programs exclude us from application because we do not have a Ph. D. program.
>
> Most faculty are not interested in research, especially in supported research. And the administration looks at research as an evil; it is not supported by Administration here. When we send in proposals, they stay in the Foundation Office from anywhere from two weeks to a month. This is too long.
>
> The State Colleges can't even share costs. The State College can forfeit part of the overhead but has no hard dollars to put into cost sharing.

(We undertook) ... about $5,000,000 of extramural research last year, although some of these expenditures will extend over several years. $25,000 came in from overhead for faculty development grants. Some overhead goes to the Chancellor's office, approximately $100,000 last year. We are now contesting this payment. One-fourth of all overhead goes to cost sharing and to make up for low overhead projects. For example, training grants carry 8 percent overhead. So the kickback to the Chancellor's office prevents us from taking the low overhead projects on, even though they are educationally valuable. There is no transfer of funds to the Chancellor, but the State College budget is cut by an equivalent amount.

The most urgent sponsored-project problem confronting State College faculty is the new cost-sharing requirements of Federal agencies. This concept is poorly understood within the college system, and there is almost no administrative flexibility to provide a project sponsor with cost-sharing resources. No cost-sharing, no grant. No grants, no grant-seeking faculty.

Two views make it hard for State Colleges to secure research funds. (1) Research is identified as "goofing off." (2) The universities don't want the State Colleges to get money. We need the same standards in the State Colleges as exist in the University.

One of the most difficult problems which may develop for faculty seeking extra-mural research support is the requirement of cost sharing by the funding agency. The status of this requirement is uncertain at present. The problem is related to the research project space problem in that the institutional cost-sharing often takes the form of providing space. In most departments, one of the most pressing problems is the shortage of such space for housing projects. Even reimbursed time for the director alone results in the need to house his replacement. At present no allowance is made in college building use formulas for research activities. The regulations governing the building use must be changed at the State level.

The foundation handled about $5,000,000 last year, 70 percent of which was research activity, i.e., the C.R.A.S.

3

stuff. The foundation also handles alumni grants, capital grants, etc. The C.R.A.S. is really an off-campus subsidy office. There can be awards of up to $400 to faculty or students. This program was started in 1962-3, and is most successful. In any one year, there will be about $13,000 given to faculty and $7,000 given to students. This enabled 41 faculty and 21 student grants in 1966-7. All of these, I think, are made from overhead funds that are redistributed by faculty committees or others.

Released time is helpful. But released time is very difficult to assign because the auditors check on the number of classes taught as well as the number of students in class. It is difficult to give a person time to reorganize the course or to do anything. Normally a person teaches four courses of three units each. We are staffed for ten units of 200 level (graduate) work. Thus, if you teach all graduates, you teach ten units. They want to drop the load to nine hours if you teach one graduate class.

Faculty may work .25 extra time and be paid by the college. They are paid through the foundation. This .25 should represent total overload for the year from all sources. However, some faculty apparently still consult additionally outside.

An incredible amount of energy is employed within the college system to devise devices for "bootlegging" released time for faculty research. With 12 hours of teaching formally a standard obligation, there is little opportunity for flexibility to meet individual faculty research needs. We are limited, too, in introducing tutorials and directed study programs. Usually these are simply an "overload" obligation of faculty enthusiastic about the learning process.

Released time should be called "reassigned time" to remove the unfounded stigma of laziness or "getting out of work" that now attaches to research activity. Sponsored projects involving research are hardly "released time" from teaching. Most projects involve the faculty member in a near tutorial relationship with his student assistants. This is decidedly a more costly form of instruction than any other and is, in effect, conducted at no cost, yet with full instructional benefit, to the college system.

(f) The limitations of funding for research:

Throughout the site visits, conversations with faculty indicated that they were confronted with a negative attitude about research. Even if local college administrators warmly endorsed the research interests of their faculty, they were seldom able to deliver more than platitudes. Faculty were all the more sensitive to the absence of funding because of the contrast of their position with the University faculty. Research was undertaken on an "overload" basis, during weekends or during vacation periods. Little support could be secured for the typing of research manuscripts, for attending professional meetings to identify where the research "action" is.

> The State Colleges get $3,150 per FTE student regardless of programs. This is the total money they get. There are .11 secretaries per faculty member, or one for ten, including all secretaries for deans and others outside the central administration. At the University, private faculty offices are almost universal. At the State Colleges, they are very rare.
>
> We have no funds for travel. We can't attend symposia. We don't know, therefore, what items are hot for funding. We lack the latest information in the research field. We simply cannot compete nationally. There is no money for out-of-State travel unless you are giving a paper or are an officer of an organization. You can travel out of State to recruit. But how do you keep up with the field?

APPENDIX D - Perspectives of California State College Faculty and Administrative Staff: Part II

This section, as the previous, draws upon discussions during site visits of the Claremont team and on testimony offered in follow-up correspondence with State College personnel.

Two themes are elaborated in this section: What is the relationship of students to the research function? In this context, are students now involved in research projects? Could projects be identified that would encourage such involvement? Does faculty preoccupation contribute to student isolation and student unrest? The second theme relates to the existing relationship of the State College and University systems, the measure of existing collaboration, and possible mechanisms for improving the coordination and inter-institutional support within higher education.

(a) Faculty Research and Student Unrest:

The faculty and administrators contributing information to the study were asked to comment on the popular view that one important source of student unrest is the lack of genuine intellectual collaboration between students and faculty because of faculty distractions with research. Responses varied, but almost all were critical of the hypothesis. First, it was explained that even if the hypothesis were correct, it would have little relevance to the State College system because of the modest amount of research undertaken by State College faculty:

> Faculty research oriented to the instructional program, as it is in the State Colleges, is viewed as a means by which teaching effectiveness is enhanced. Effective teaching is considered to be a factor which would minimize

> student unrest. Instances of preoccupation with faculty research among State College faculty are not known to the writer.

In a similar vein:

> If a causal link between student unrest and faculty preoccupation with research could be clearly shown, the conjecture would still probably not be applicable to the State Colleges, where the teaching load largely discourages such intense involvement in research.

The second set of responses challenged the hypothesis, simply as one that oversimplifies the complex and multiple causes of student unrest:

> I believe that it is clearly not true on this campus and would doubt that it is true on any State College campus.
>
> Anyone who would claim that faculty preoccupation with research has contributed to student unrest on State College campuses is attempting to blame the troubles of the world on the campus. Anyone who is aware of the issues involved with student unrest should recognize that it is not limited to the State Colleges; it is not limited to the campus. It is found in the political parties of the country. This is a simplistic and inadequate focusing of the question.
>
> The problem of student unrest is basic to our times and not unique to State College campuses. There is little or no foundation to the statement.
>
> This is not a factor within the State Colleges to any extent comparable to that within the Universities. Scholarly activities, directed to the search for Truth, and manifested in a creative manner, may at time, and should, question the status quo. Scholarship, properly channeled, must be free to ask the necessary questions and to search for correct answers to the problems of the world in which we live. If anything, the lack of involvement of faculty; and particularly, graduate students, in meaningful research programs has been a causative factor in contributing to student unrest on several of the State College campuses.

Thus, the third opinion is that it is the lack of "relevance" in existing academic programs, and the lack of student involvement in research on relevance, that contributes to student restlessness. The lack of faculty research, not its excess, is a contributing factor to unrest.

Just as the respondents were not typically willing to identify research as the most important single factor contributing to student unrest, so were they reluctant to subscribe to the view that participatory research projects with heavy student involvements could, by themselves, assure a solution to the problem of student unrest.

> Greater student involvement in research might tend to mitigate certain student discontents, but would probably not have any major effect upon what appears to be the purposely disruptive activities of certain current student organizations usually included under the term "student unrest." It is doubtful that those identified as activists are interested in research.
>
> I would doubt that the expansion of student involvement in research would have any effect upon student unrest.
>
> Student involvement in research cannot reduce student unrest to any significant extent. There is no one-step approach to solving this problem. It is far too serious and deeply rooted to be solved by any single means.

But there was a strong current of opinion that indicated that research which would involve students, research dealing with contemporary issues, research with obvious "relevance" to reality would do much to absorb the creative energies of the student population.

> It is extremely important to us at this time that we find more ways to involve students and improve the quality of our instruction. We need support from the State to fund research projects which can utilize students. We have found that some of our activist students are good students

> academically. Involvement in research would be an excellent method to channel their energies.
>
> Research and scholarship have a common goal, the search for Truth and the extension of Knowledge. As faculty and as students, both undergraduate and graduate, pursue these goals they channel their energies in constructive rather than in destructive channels. A greater involvement of the academic community in active pursuits would inevitably result in a decrease in unrest on the campuses. Such commitments by both students and staff would have subsidiary benefits of making the results of their endeavors available, through channels of communication, including publications, to the state, the nation, and to the worldwide public.
>
> I believe that if students were given more opportunity to participate actively in productive scholarship on our campuses that it would contribute to some reduction of student unrest, because it would provide opportunity for students to participate directly in the process of scholarship. At the present time, the campus is all too frequently a place where they go through a set of routine experiences without ever contacting scholarship. In the urban campus, they have difficulty supporting themselves and associating with the campus because their time is split between a few hours on campus and time off campus and part-time jobs, etc. I believe that the NSF Undergraduate Research Participation Program is one of the more important programs which they have generated. It has enabled students to be introduced to scholarship at an earlier time in their career than was formerly true. I favored change in that direction.

(b) Mechanisms to Encourage Student Involvement in Research:

Because of the promising potential of expanded student involvement in research projects, respondents were asked to identify some of the on-going mechanisms for such involvement. An interesting array of programs were reported:

> On this campus we have NSF Undergraduate Research Participation Support to help students associate with faculty

research. If these students weren't being funded this way, they would be driving trucks and putting gas in cars for part-time support. This enables them to associate with scholarship and is a part of their educational program. The same is true with graduate students. Further, graduate students are asked to do independent research projects as part of their thesis.

Almost all instructional departments at the college require a senior project, which is described in the catalog as follows:

"Selection and completion of a project under faculty supervision. Projects typical of problems which graduates must solve in their fields of employment. Project results are presented in a formal report. Minimum 120 hours total time."

Although such senior projects result in only four units of credit, many students carry on quite extensive research-type investigations for their senior projects. Engineering students, through their senior projects, have won awards in competitions sponsored by various national engineering organizations, including the Max Short award of the Society of Automotive Engineers and the Lincoln Award for welding design.

Master's degree programs are now planned in some twenty majors according to our master plan, as contrasted to a very limited number of such programs in the past. These programs will of necessity involve a larger number of faculty and students in more significant research projects.

A small number of Graduate Assistants are appointed to aid faculty members in research, and a limited number of undergraduate students occasionally assist the research of some faculty members, who pay them from whatever research grant funds they may hold.

Most - from 70 percent to 80 percent - of sponsored projects are instructional rather than research; that is, in direct support of non-research training programs. Research and other creative activity constitute a minor part of grants received.

Student participation is encouraged indirectly through our Institutional Research Grants program. Grants (up to $1,500) are made to faculty members to support new research ideas. Formal surveys have shown that more than 70 percent of these funds are used to pay students (graduate and undergraduate). The largest proportion of the remaining funds is used to purchase equipment, Additionally, faculty (especially in the sciences) support virtually all thesis research students on federal grant funds. The Associated Students have also established a modest research fund for use by graduate students.

Essentially all of our masters degree candidates are involved in research projects. Most of these are not funded. A very limited number of undergraduates are involved in research projects. We do not have a student faculty research fellowship program. A few faculty members have grants which provide support for graduate or undergraduate assistants.

The mechanism employed by several departments, notably Biological Sciences, English, etc., to encourage student research include: (1) the appointment of master's candidates to part-time faculty positions, thereby supporting graduate research; (2) the use of work-study monies to support research assistants at various academic levels; (3) the use of graduate students and, in some cases, undergraduates as technical research assistants, paid from research funds.

Support comes from the Faculty Research Fund, funded by our State College Foundation and a National Science Foundation Institutional Grant. These funds are awarded to faculty in small amounts (usually under $1000) on the basis of application. Faculty awarded grants are encouraged to involve students in their projects.

Undergraduate Research Participation grants from NSF have helped involve undergraduate students in research. To date most of these grants have been to the Department of Chemistry.

(c) The Potential for Student Involvement:

In one of the site visits, the conversations regarding student involvement in research led to conjecture about the possible extent of such participation if the faculty were to give conscious attention to the issue. It was agreed that a survey would be made of some of the summer faculty to explore the question. The following submissions, in no sense a random sample or complete, are suggestive of the possibilities for developing collaborative research projects.

Report No. 1: Submitted by an assistant professor of biology: Since this is my first year in the California State College system I have not had the opportunity to continue my research in Microbial Physiology. Accordingly, I have no existing project involving students. But I have several projects in mind which would involve students and be of great educational value to those students:

(1) I spent two years before coming here studying the physiology of streptomycin dependent bacteria. I would like to continue this work; it is an area of research which lends itself to student participation because each phase of the work can be broken down into relatively simple bacteriological experiments within the grasp of undergraduate students with a strong background in Microbiology. Moreover, the biology department is presently equipped for such research as far as capital equipment is concerned. All that would be necessary would be money for expendable items.

(2) Another project I am interested in pursuing is a continuation of my own predoctoral research: A study of lactose metabolism in bacteria which do not ferment the sugar. Although this sounds like a contradiction, I found in the course of my research that many organisms which do not ferment lactose, fail to do so because they lack an enzyme, galactoside permease, and not because they lack the other enzymes involved in lactose metabolism. This too, is an area of research well-suited to student participation. Indeed, I first became interested in the problem as an undergraduate at UCLA.

(3) I have in mind many other projects which I have not yet begun. These have arisen mainly as ideas from reading the "literature." These include studies of synchronous growth in bacteria, lytic enzymes from myxobacteria, bacteriophages for anaerobic bacteria etc. I see no reason why any of the projects could not involve student participation.

In a broader sense, there are probably no areas of biological research in which student participation would not benefit both students and the research director.

Report No. 2:

There are several projects in mind which could be established and which would provide opportunities for student participation in research. These are in the area of numerical analysis - digital computer techniques, and would afford opportunities for research for both undergraduates and (eventually) graduates.

(1) Problems in the Optimization of Systems. These involve mathematical modeling of physical or business systems, and use of linear programming, dynamic programming and other numerical methods of solving optimization problems in conjunction with a computer.

(2) Numerical methods. Specifically the research in mind is that directed towards obtaining efficient and accurate numerical methods (suitable for use on a computer) for the solution of nonlinear differential equations. There is a considerable area of research here involving both mathematical and computer programming. For example, the method of steepest descent and related gradient methods are nice in theory, yet many problems of round-off error and truncation error occur in obtaining numerical results on the machine (because of many iterations).

Report No. 3:

We have only one project conducted by Education staff members in collaboration with students. This entails studying children's preferences for various methods of teaching reading.

There are a number of projects that could be established that would involve our students:
(1) The study of disadvantaged students: ways of helping them with self-concept; motivation; teacher aids, and how they might be utilized.
(2) The study of teaching strategies currently employed in the public schools and their applicability to pre-service.
(3) A study of school resistance to change.
(4) Study of the educationally handicapped child.
(5) Analysis of the adequacy of preparation of our own students for teaching in a variety of subject-matter areas.

Report No. 4:

Professor A and I have engaged several of our students in laboratory research on new experiments in the freshman chemistry laboratory. We are analyzing their results and these will be contained in a paper sumbitted to the Journal of Chemical Education, and also to be given at the fall regional meeting of the American Chemical Society in San Francisco.

Report No. 5:

I have been preparing three freshman composition textbooks under contract for publication. The student assistant who has been made available to me for a few hours a week is doing both clerical work (duplicating, typing, etc.) and creative work (pursuing ideas for selections, originating correspondence, preparing headnotes, etc.) Student collaboration in this project could obviously be expanded, with such involvement of value to the students, to me, and the finished products.

Report No. 6:

I am planning a book on English Aesthetic Theory that would serve my seminar, Philosophy of Art and Criticism. Student participation in research could be very helpful in several ways. Students could be assigned several English-language philosophy journals to cull all back issues for articles on particular problems, periods, and writers on aesthetics, actually reading and reporting on the articles uncovered, as well as identifying them for a master bibliography.

Report No. 7:

I would like to involve students in studies of the effects of new science programs (AAAS, ECIS, ESS etc.) upon the growth of mental ability and self-concept among culturally different groups. I would like to compare the effectiveness of various patterns of teacher training (internships vs "regular patterns"). And I would like to involve students in the studies of concept growth and language growth among culturally different groups.

(d) Student ratings of faculty effectiveness

State College personnel invited to supply viewpoints for this study were asked if they had developed records that would correlate student ratings of faculty in terms of teaching effectiveness with the research records of that faculty.

There was little formal evidence on this point; a few reviewed some of the methodological problems in classification of faculty research. One identified problems of output measurement in the creative arts. Several suggested that research in this area be undertaken. Without exception, however, all respondents expressed the intuitive belief that the faculty praised by students for classroom effectiveness were generally those with an active research history:

> No formal evidence is available on this point. However, several of the faculty who have been recipients of the "Outstanding Professor" award are widely acclaimed by students as being excellent teachers as well as having a long record of productivity in research.
>
> The students in our college have completed only one publication of evaluations of faculty for the Spring of 1967. Preliminary study of the student ratings of all faculty members indicate that those with a record of research or scholarly activities have an above average rating in these evaluations.
>
> In my experience, research faculty are the best teachers. There may be some exceptions possible in the humanities for here it is possible to be a good scholar without concurrent faculty research.
>
> It is a myth to claim that the small liberal arts college with distinguished records in securing fellowship awards for their graduates are teaching oriented, with a faculty that has little interest in research. The publish or perish standards may not be advertised, but in most of these colleges tenure appointments are built on the publication record.
>
> The thing that has impressed me as I have looked over these lists (of student ratings and faculty publications)

> is the fact that there is a "feelable" correlation between most effective teaching and continued creative effort, whether it be research, writing, or other forms of creativity. The obverse also comes through in that the unsatisfactory or low rated teachers seem to have little else going for them on the creative side.

> ... my best teachers are those who have a preoccupation with scholarship which involves research as well as teaching. They can produce through analysis and experiment and they communicate their knowledge to their peers. The influence of the peer judgments and their own, then are taken directly into the classroom.

> We can find individual cases where research has competed with teaching. I do not know of any on my campus. In the doctoral programs and the post-doctoral programs it can be claimed that research is as competitive as teaching. However, at certain levels, association with a researcher is a student-teacher relationship in itself focusing on the methodology of research. Thus these two categorizations are too inclusive and answers to them cannot be made in a conclusive manner.

(e) Relations with the University System in the Cultivation of the Research Function:

Conversations with the State College faculty indicate the respect generally held for the university faculty. Several themes were frequently represented in those discussions. First, the need to liberalize support of the research function in the colleges should not be designed as an assault of present funding arrangements for university research. A collaborative rather than competitive relationship should be cultivated. Secondly, because of the experience of the university faculty in writing project proposals, and because of the strategic location of many university faculty on the review panels determining the merit of proposals, consulting assistance of university faculty could give a lift to college faculty efforts to secure federal and foundation funding for research. A few of the colleges, however, felt they had developed the critical mass of talent and sufficient experience in grantsmanship that they need not solicit assistance from the university system. One college group pointed to the successes of its own research foundation and intimated that the prospects for the future were encouraging if they could be free of harassments of dubious and critical state administrative agencies. A third theme was the reality that mutuality and respect between the systems could not be legislated but would have to be established on a person-to-person basis. Collaboration would follow from meetings of college and university personnel dealing with intellectual issues of interest to each discipline. In this context it was acknowledged that the joint administration of research funds might, however, encourage collaboration. There was some feeling that State College faculty were treated with indifference by their university counterparts.

Turning to specifics, the most commonly identified service of the university system was access to library facilities. The slow pace in the development of joint degree programs was usually attributed to the aloofness and indifference of the university system. The following excerpts may reveal some of the flavor of state faculty and state administrator attitudes:

> The university contributes nothing by way of resources and so on to the colleges. The history of the joint Ph.D. shows that the Donahoe Act has failed. The ----- department has tried for two years to set up such a program ...but nothing has happened. Here is another specific example of the same thing, but don't quote it...

> The joint Ph. D. program can't work under these conditions. There's immense foot-dragging on the part of U~~.~~C.
>
> We lack a genuine collaboration in the use of facilities of the university. For example, we can negotiate for a two-week library card. Faculty access to research materials is largely restricted to a "look-see" basis.
>
> The library collections of the U~~.~~C~~.~~ Berkeley campus have been and continue to be accessible to our faculty members.
>
> The only examples illustrating the extent and form of services or resources thus far provided by U~~.~~C~~.~~ to support research efforts of faculty at this college include such items as offering library privileges on all U~~.~~C~~.~~ campuses, making materials available through inter-library loan, extending invitations to attend special seminars, and taking advantage of personal and professional acquaintances a faculty member may have at a university campus.
>
> There are no formal services presently available (except library facilities) from U~~.~~C~~.~~ at this point. A number of faculty have established both personal and departmental relationships with their analogues at U~~.~~C~~.~~ and other campuses. Until recently the computing facilities of the Western Data Processing Center at UCLA were available for faculty research projects. However, as of July 1, these are no longer available without charge. This function was a useful one and attempt to re-institute and improve this service would be worthwhile.
>
> There are no organizational links with the university except access to the library. Relations are on the basis of good-will rather than rules.
>
> We have leaned heavily on Stanford for library, particularly for biological materials and for participation in seminars. No services are provided by U~~.~~C~~.~~ in this area.

The question was also raised about mechanisms that might increase the opportunities for collaboration on research between college and university faculties. Responses reflected, in part, the disparity of distances to the closest university. There was a suggestion made that shuttle bus services operating between the universities be redesigned to include "stops" for area colleges. But a more frequently raised possibility was to arrange for single-semester rotation of faculty who might have interests in common research topics. "...an uninterrupted period, such as that provided by a leave of absence, or a quarter out-of-residence would have to be provided." The suggestion was also made that inter-university location arrangements operating between some of the universities for the benefit of students with specialized research interests might also be extended to State College students.

A further suggestion was to rationalize the recruitment of faculty to establish areas of excellence that would distinguish institutional strength on an area basis:

> A recognition is needed of areas of excellence in the preparation of staff, without regard to the institution (whether it be private or State College or University of California campuses). Such areas of strength exist, and are recognized in developing joint-doctoral programs between the State Colleges and the University. The utilization of such centers of excellence would avoid needless and costly duplication of staff, facilities and equipment.

The following commentary typifies statements made about extending access to the university campus research resources:

> Sharing of UC library privileges for students as well as faculty would be helpful; we should have access to a regularly scheduled shuttle bus service, similar to one now operating between UC Santa Barbara and UCLA. Access to UC computer facilities wherever UC's more sophisticated computer equipment is indicated for certain research projects to be donducted by students or faculty. Where UC campuses have certain equipment (e.g. atomic reactor) whose cost would be prohibitive to the current State College resources, arrangements could be made for shared use.

(f) Some Concluding Observations:

In this review of personnel policies directed to the attitudes of the faculty in the State College system, it is not surprising that a strong appeal should be made for more support. Much of the testimony underlined the need for "more, more, more ...and now," with the benchmark for equity, or the "orbit of coercive comparison", provided by the generous funding and research success of the university system.

In the pursuit of excellence, definitions of needs are seldom contained by attention to budget constraints. In the testimony regarding frustrations of recruitment, the subjective element is most obviously present. It seems clear, however, that important information could be provided if more data were gathered on short term, intermediate, and long-term vacancies. Much of the information about the reasons for refused appointments is obviously based on intuition or impressions secured in casual conversation. It would be helpful if more explicit information could be secured that would allow some ordering of the circumstances that frustrate the recruitment effort.

There is obious contrast in the competitive realities for each discipline; there are contrasting location advantages for each of the State Colleges. The coding of information on refusals for offered appointments by college and by discipline over a peri of time should offer important clues on the need to improve recruitment strategies, whether this involves more flexibility in the salary structure or changes in job content.

The testimony makes it clear that research is not a single element in thwarting successful recruitment or contributing to faculty turnover. It is simply one element of the job environment that has acquired symbolic significance. In some of the verbal testimony, it was acknowledged that if the faculty were research oriented, that research would be done, no matter how inhibiting or distracting job duties were. Offering subsidies and encouragement for research gave little assurance that faculty members would sharply change their way of life. But the complaints about research were symbolic of the shortcomings of the total job environment. In brief, criticism was leveled against the inadequacy of the salary structure, the requirement to teach 12 hours per week, the expectation that faculty should spend much of its time in collaboration with students out of class, the deficiencies of secretarial support, the lack of research hardware, the lack of formal recognition on the importance of research, the limited funds for attendance at professional meetings. One advantage of the "star" or "celebrity" system is that with a distinguished research faculty member on the staff, youthful job candidates are attracted to that college and department to enjoy the contact and intellectual prod that association with the celebrity might provide. It is difficult to recruit eager and ambitious faculty to departments characterized by an older faculty with undistinguished research records. One is attracted to the "atmosphere" of the department, the vitality of the faculty, the novelty and ferment in the academic program, and hopes for the future. If those hopes show little prospect of being realized, faith is dissipated or transformed to bitterness and cynicism. Faculty members who refuse to be beaten down by the system leave.

APPENDIX E

THE CALIFORNIA STATE COLLEGES
Office of the Chancellor
5670 Wilshire Boulevard
Los Angeles, California 90036

September 16, 1968

TO: State College Presidents

FROM: Glenn S. Dumke, Chancellor

SUBJECT: 1. Special Adjustments of Individual Teaching Loads
2. Use of Instructional Resources

1. Equalizing and Adjusting Individual Teaching Loads:

Within the use of the faculty staffing formulas for budgetary purposes and as the norm of annual work load in the California State Colleges, the president of each State College is authorized to make specific adjustment in the teaching load of an individual faculty member based upon certain instructional and instruction-related criteria, including such factors as:

A. Teaching

(1) Number of classes
(2) Number of different preparations
(3) Number of new preparations
(4) Levels of instruction
(5) Types of instruction
(6) Total number of students taught
(7) Evaluation of students
(8) Number of related clerical, technical, and graduate assistants

B. Special programs

(1) Special instructional programs
(2) Instructional experimentation and innovation

C. Instructional administration

(1) Instruction-related advising loads
(2) Instruction-related administrative and committee assignments
(3) Curricular studies and accreditation responsibilities
(4) Instruction-related planning for facilities

D. Research

(1) Instruction-related research activities

The exercise of this administrative flexibility at each institution should be based upon work load levels established through the budget process. In other words, each college must meet its commitment in regard to budgeted FTE. The normal teaching load under present policies is 12 weighted teaching units at the undergraduate level and 10 weighted teaching units at the graduate level of instruction. While it should be clear that administrative authority to make special adjustments in individual faculty teaching loads is desirable under any norm, such provision for flexibility is not to be used to achieve a general reduction in weighted teaching unit loads. Some annual deviations from the standard number of weekly student contact hours per student credit hour and from the size of classes established by the staffing formula are authorized, provided such deviations are reported with appropriate explanation to the Chancellor's Office. Any substantial deviations must be considered in the light of budget implications and planning in subsequent years. Certification for pay purposes of individual faculty members shall continue to be the responsibility of each president or his designated instructional administrative officers.

2. Use of Faculty Positions and Other Instructional Resources:

The Budget Act of 1968 states in Section 31.5(a), "The Trustees of the California State Colleges may approve any transfer of funds within the major budgetary functions of general administration, instruction, library, student services, plant operation, student pay--work study, year-round operation, educational television, reimbursed activities, chancellor's office, international program and reimbursements, as provided in fiscal year budgets of the state colleges and the Trustees of the California State Colleges approved by the Department of Finance. The Trustees of the California State Colleges may approve any transfer of funds between the chancellor's office and any state college, or between any state college and any other state college."

The president of each State College is therefore encouraged to analyze current policies and practices on his campus with regard to the utilization of resources for instruction. A cost benefit analysis may reveal that a given program may become more efficient and effective by utilizing a combination of instructional resources for purposes other than those specifically budgeted. The trade-off proposal must be made in terms of the aforementioned cost benefit analysis in a well-defined program plan submitted for approval on a one-year temporary basis with the conditions that: (1) each college must meet its budgeted FTE and salary savings; (2) the conversion is not for supporting programs specifically denied in the final budget; and (3) the proposal is consistent with the Academic Master Plan approved by the Trustees.

If faculty positions as well as other instructional resources can be used more efficiently and effectively by converting the budgeted funds into other resources, such proposals should be forwarded for consideration and approval to the Chief of the Division of Budget Planning and Administration, who will confer with representatives of the Division of Academic Planning on the proposed program plan.

GSD:pfz

Copies to: Vice Presidents and Deans of Academic Affairs
Business Managers
Chancellor's Staff

APPENDIX F: National Science Foundation Grants to State Colleges and the University, 1965, 1966, 1967 (1)

Table I: NSF Basic Research Grants - California State Colleges, FY65-67

College	1965	1966	1967	Tot
BIOLOGICAL SCIENCE				
Cal State Poly	--	28,100	22,100	50,20
Chico	39,900	14,000	45,300	99,20
Fresno	--	--	23,500	23,50
Fullerton	--	19,500	--	19,50
Hayward	74,100	--	--	74,10
Long Beach	--	69,200	--	69,20
Los Angeles	89,300	32,800	71,900	194,00
Sacramento	15,200	--	34,100	49,30
San Diego	--	246,700	99,700	346,40
San Fernando	95,200	17,100	20,700	133,00
San Francisco	--	52,350	65,950	118,30
San Jose	85,300	27,200	14,900	127,40
TOTAL (12)	399,000	506,950	398,150	1,304,10
MATHEMATICS AND PHYSICAL SCIENCE				
Hayward	--	--	11,000	11,00
Long Beach	4,000	--	36,600	40,60
Los Angeles	20,000	20,000	29,500	69,50
San Diego	48,300	54,400	103,900	206,60
San Fernando	--	--	16,600	16,60
San Jose	16,800	15,000	22,300	54,10
TOTAL (6)	89,100	89,400	219,900	398
ENGINEERING				
San Diego	--	--	9,000	9,00
San Jose	--	36,000	--	36,00
TOTAL (2)	--	36,000	9,000	45,00

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(1) National Science Foundation, Grants and Awards; 1965, 1966, 1967.

College	1965	1966	1967	Tot
SOCIAL SCIENCES				
Fresno	--	--	32,400	32,4
Long Beach	--	--	54,300	54,3
Los Angeles	7,900	45,400	--	53,3
San Diego	46,800	6,700	1,600	55,1
San Fernando	7,200	--	--	7,2
TOTAL (5)	61,900	52,100	88,300	202,3
ENVIRONMENTAL SCIENCES				
Humboldt	--	3,400	--	3,40
Long Beach	--	1,800	--	1,80
Los Angeles	6,200	--	--	6,20
San Diego	16,800	--	--	16,80
San Jose	127,700	--	179,700	307,
TOTAL (5)	150,700	5,200	179,700	335,60

TOTAL - ALL BASIC RESEARCH

Cal State Poly	--	28,100	22,100	50,200
Chico	39,900	14,000	45,300	99,200
Fresno	--	--	55,900	55,900
Fullerton	--	19,500	--	19,500
Hayward	74,100	--	11,000	85,100
Humboldt	--	3,400	--	3,400
Long Beach	4,000	71,000	90,900	165,900
Los Angeles	123,400	98,200	101,400	323,000
Sacramento	15,200	--	34,100	49,300
San Diego	111,900	307,800	214,200	633,900
San Fernando	102,400	17,100	37,300	156,
San Francisco	--	52,350	65,950	118
San Jose	229,800	78,200	216,900	524,
TOTAL (13)	700,700	689,650	895,050	2,285,400

Table II: NSF Institutional Base Grants - California State Colleges, FY65-67

College	1965	1966	1967	Total
Cal State Poly	--	11,240	*19,150	30,390
Chico	11,140	14,496	11,720	37,356
Fresno	--	10,123	14,318	24,441
Fullerton	6,700	11,900	1,980	20,580
Hayward	6,885	23,733	10,200	40,818
Humboldt	10,500	3,400	4,300	18,200
Long Beach	9,270	20,899	--	30,169
Los Angeles	20,470	27,173	23,447	71,090
Sacramento	--	15,060	10,360	25,420
San Diego	29,693	48,703	50,939	129,335
San Fernando	17,505	10,082	16,842	44,429
San Francisco	13,953	22,488	20,253	56,694
San Jose	33,340	22,916	17,162	73,418
Sonoma	--	--	2,000	2,000
TOTAL (14)	159,456	242,213	202,671	604,340

*Includes $3,950 to California State Polytechnic College Foundation and $15,200 to Cal Poly Kellog Unit Foundation.

Table III: NSF Basic Research Grants - University of California, FY65-67

UNIVERSITY	1965	1966	1967	TOTAL
BIOLOGICAL SCIENCES				
Berkeley	965,100	1,412,300	1,875,200	4,252,600
Davis	655,050	404,500	1,156,400	2,215,900
Irvine	--	82,100	168,200	250,300
Los Angeles	730,400	984,600	1,011,250	2,726,250
Riverside	105,900	307,500	275,250	688,650
San Diego	1,048,300	1,609,250	1,060,900	3,718,450
San Francisco	98,162	223,200	89,900	411,262
Santa Barbara	285,600	498,700	637,300	1,421,600
Santa Cruz	--	140,350	20,100	160,450
Total (9)	3,888,512	5,662,500	6,294,500	15,845,152
MATHEMATICS AND PHYSICAL SCIENCE				
Berkeley	1,380,500	1,634,800	1,249,500	4,264,800
Davis	62,600	203,800	102,400	368,800
Irvine	--	449,900	176,900	626,800
Los Angeles	651,500	1,434,000	1,142,000	3,227,500
Riverside	231,200	265,700	301,800	798,700
San Diego	293,200	658,200	388,600	1,344,000
San Francisco	--	--	--	--
Santa Barbara	217,800	419,300	448,800	1,085,900
Santa Cruz	--	26,100	207,000	233,100
Total (8)	2,836,800	5,091,800	4,017,000	11,945,600
ENGINEERING				
Berkeley	1,030,800	1,182,300	1,248,600	3,461,700
Davis	61,900	41,400	190,300	293,600
Irvine	--	--	60,000	60,000
Los Angeles	223,000	253,400	367,300	843,700
Riverside	--	--	--	--
San Diego	20,200	33,500	147,700	201,400
San Francisco	--	--	--	--
Santa Barbara	--	39,100	31,100	70,200
Santa Cruz	--	--	--	--
Total (6)	1,335,900	1,549,700	2,045,000	4,930,600

SOCIAL SCIENCES UNIVERSITY	1965	1966	1967	TOTAL
Berkeley	583,300	360,400	412,000	1,355,700
Davis	6,000	2,100	30,700	38,800
Irvine	--	115,000	6,500	121,500
Los Angeles	81,400	429,200	194,170	704,770
Riverside	33,500	30,400	6,200	70,100
San Diego	--	--	33,200	33,200
San Francisco	--	--	4,300	4,300
Santa Barbara	--	133,800	29,800	163,600
Santa Cruz	--	13,700	--	13,700
Total (9)	704,200	1,084,600	716,870	2,505,670

ENVIRONMENTAL SCIENCES				
Berkeley	405,500	882,800	376,700	1,665,000
Davis	20,400	54,600	--	75,000
Irvine	--	--	--	--
Los Angeles	472,800	642,100	869,300	1,984,200
Riverside	20,900	30,100	69,000	120,000
San Diego	1,614,900	965,600	426,000	3,065,000
San Francisco	--	--	--	--
Santa Barbara	89,000	14,000	40,400	143,400
Santa Cruz	--	--	--	--
Total (6)	2,623,500	2,589,200	1,817,400	7,030,100

TOTAL - ALL BASIC RESEARCH

Berkeley	4,365,200	5,472,600	5,162,000	14,999,800
Davis	805,950	706,400	1,479,800	2,992,150
Irvine	--	647,000	411,600	1,058,600
Los Angeles	2,159,100	3,743,300	3,584,020	9,486,420
Riverside	391,500	663,800	652,250	1,707,550
San Diego	2,976,600	3,266,550	2,056,400	8,299,550
San Francisco	98,162	223,200	94,200	415,562
Santa Barbara	592,400	1,104,900	1,187,400	2,884,700
Santa Cruz	--	180,150	227,100	407,250
Total (9)	11,388,912	16,007,900	14,202,520	41,599,332

Scripps Institute and other university agencies are not included in the above summary.

APPENDIX G - President Benezet's Letter of July 9, 1968 to Twenty Leading Educators

Dear __________:

I have been asked by the Coordinating Council on Higher Education in California to direct a study of the place and function of faculty research in the California State Colleges. In order to establish a point of view I should greatly appreciate a brief opinion from you among some twenty educators whose judgment would be particularly helpful to us.

The Donahoe Higher Education Act which was based on the Master Plan for Higher Education in California, states that "...the University of California is the primary state-supported academic agency for research." Concerning the State Colleges it says, "The primary function of the State Colleges is the provision of instruction for undergraduate students and graduate students, through the master's degree, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession.... Faculty research is authorized to the extent that it is consistent with the primary function of the State Colleges and the facilities provided for that function."

In your judgment, does this statement suggest a useful delineation of faculty research function either in a State College or in any type of institution? Are there ways by which a faculty might be encouraged to develop research activity in keeping with "The primary function of... instruction...?" Can the distinction be implemented in other words?

One or two paragraphs is all I need. Since the first report must be made to the Coordinating Council by the middle of August, I shall hope that this letter finds you in the office and that you can give me your reactions more or less spontaneously.

Gratefully, with regards,

Appendix H: Reply to President Benezet's
letter [illegible]

THE UNIVERSITY OF IOWA
IOWA CITY, IOWA 52240

Office of the President

18 July 1968

Dear Louis:

This is in response to your letter of July 9 about the California Coordinating Council. I happen to be chairman of the Iowa Coordinating Council, so apparently we have something in common.

I find the distinctions expressed in the passages you quote exceedingly arbitrary and fraught with controversy and frustration. It would seem to me more appropriate if the language were something like the following:

> Faculty members in the Univerity of California, the State Colleges, and the private colleges and universities should be capable and dedicated teachers. Successful teaching requires, for most teachers, that they be active and productive in their professional fields as scientists, scholars, creative and performing artists, critics, inventors, intellectual leaders, and as authors of innovative teaching materials and methods. Faculty members should be assisted and encouraged in developing their professional interests and competencies. Teaching loads should be adjusted accordingly. It would be expected that the University of California would be a center for research involving expensive equipment and large teams of full-time research workers. However, faculty members at all colleges and universities would be encouraged and expected to engage in creative professional activities as an activity complementary to and supportive of education both undergraduate and graduate.

I hope this statement will be of some use. I have tried to play down the word "research" which I consider to be a misleading and greatly overused term.

Warm regards.

Yours sincerely,

Howard

Howard R. Bowen

President Louis T. Benezet
Claremont Graduate School and
University Center
Claremont, California

Signed in Mr. Bowen's absence.

STATE OF CALIFORNIA RONALD REAGAN, Govern

COORDINATING COUNCIL FOR HIGHER EDUCATION
240 VIA GENOA
LIDO ISLE
NEWPORT BEACH, CALIFORNIA 92660

Office of the President

July 18, 1968

President Louis T. Benezet
Claremont Graduate School and University Center
Claremont, California 91711

My dear Louis:

Your letter of July 9 puts me in a very difficult position. You quote from the Donahoe Act with reference to the State Colleges on the matter of faculty research. Nine years after I wrote the sentences pretty much in the same form, along with the Master Plan Survey team, as appeared later in the Donahoe Act, I am asked to pass judgment upon my own use of words. I admit immediately that the statement is less than perfect or ideal for the description of the faculty research function in any type of institution. Since not all members of a given faculty are necessarily very effective in the field of instruction, and even in an institution where the primary function is teaching, it is not always easy to delineate between the substantive and the procedural, between what is actually research related to teaching and what is research related to the development of the substance of the science itself in which the instructor deals.

The wording chosen at the time was the best possible compromise. I was determined, as my book on *Crises in California Higher Education* states, to get the privilege for faculty research into the State Colleges. I was opposed by Kerr who was representing the monopoly of the University in this regard. I took the position that faculty should be allowed to carry forward research even if it were not on state funds but supported by sponsoring organizations, that nothing under these circumstances should prevent the possibility of a faculty man going forward with some type of research that was substantive. I still think that it is appropriate in the State Colleges for such research to be conducted with the released time charged to the project. The University of California at the time very strongly resisted this interpretation, but it never got into words except in the way in which it is in law which primarily relates to the utilization of state funds.

As an economist I don't see how I can always distinguish between something that is related directly to the teaching of the subject, particularly as against something that has to do with the internal content itself of the science, particularly when one of the functions of teaching is analysis of the meaning of words, analysis of the thought processes of previous writers in the fields, analysis of the potential significance of a given theory. This is the way in which youth are trained. It also may be the way in which they are developed in their own capacities to conduct research.

I recently wrote at his request to Dr. Spalding to the effect that "appropriate research" may be ill defined in the sense of specificity, but after all, research cannot be "appropriate" unless consistent with the function of the institution. Some difficulty has arisen because legislators and executives did not understand "research" of any kind, or because they were searching for an excuse to deny funds anyway, or because faculty and administrative personnel in the State Colleges are ardent for a broad definition. I had a fear also that your project as outlined might be said to be worded inadequately, that it might fail to prevent the opening of the door to even looser meanings of the word "research." I just wonder about this. I hope very much that you will broadly confer and not simply contemplate in the abstract. Apparently you are doing exactly what I would like and that is to see what many people may reply to your questions.

I think the main issue is whether or no the research involved is primarily to be covered by state funds and a basis of appropriation, and whether or no any research that any faculty persons in the State Colleges carry forward on subjects other than related to instruction as such, adequately administratively defined, will be financed by non-state funds.

You have the problem of the adviser to function regardless of the political implications. I have had the responsibility of the administrator to involve all of these considerations, and of course, you recognize that what was written in the Master Plan represented a clear and unmistakable search for sufficient agreement that there would be no dissent.

Actually, I wish the State College faculties were more interested than they have shown themselves to be in the matters of research into the ways of improving instruction at all levels. Certainly you will obtain a list, I should think, from each of the State College research foundations, through the presidents of the respective State Colleges, to get real examples of what kinds of research have been done in the past and how they have been financed. Certain of these foundations in the State Colleges have had quite extensive programs, for example at San Francisco State College.

I wish you well. I am sorry to have delayed my answer. I'm glad I don't have your job.

With warm good wishes,

Sincerely,

Arthur

Arthur G. Coons

THE DANFORTH FOUNDATION

222 SOUTH CENTRAL AVENUE
ST. LOUIS, MISSOURI 63105
AREA CODE 314 862-6200

July 22, 1968

Dr. Louis Benezet
Claremont University Center
Claremont, California 91711

Dear Louis:

In answer to your letter of July 9, I am happy to send you this personal comment on "the place and function of faculty research in the California State Colleges," as suggested by the Donahoe Higher Education Act.

If I understand the wording of that act, the distinction it makes between research in the University and in the State Colleges does not appear to me to be a valid one. Research by faculty members in all institutions of higher education is an important concomitant of their work on instruction; and this holds true, I believe, for every subject matter that is appropriate to the curriculum of a post-high school institution. This is true because research is not really a concomitant but is an indivisible part of the teacher-scholar's total functioning. As a teacher in any institution of higher education, he engages in research as normally and as inevitably as he engages in direct instruction -- that is, if he is on his toes and doing his proper job. I find it hard, therefore, to make any valid distinction on this point for the individual professor between the University and the State Colleges.

The one point at which it appears to me some valid distinction might be drawn has to do with organized group research. It is conceivable that in a state system such as California's the great majority if not all of the special institutes and centers for research might properly be located at one or another branch of the University, by virtue of its being given higher priority for the offering of the most advanced degrees. Even here, however, I should think that some exceptions might be made, depending upon the special interests or locations of state colleges or the needs of the state in general. Organized group research as represented by special institutes or centers ought not to be allowed to proliferate, and thus most of them on specific topics might well be located on one or another University campus. With the hope that we can have a visit together one of these days soon, and with best personal wishes,

Most cordially,

Merrimon Cuninggim
President

MC/bjm

TEACHERS COLLEGE
COLUMBIA UNIVERSITY
NEW YORK, N.Y. 10027

OFFICE OF THE PRESIDENT

July 22, 1968

Dr. Louis T. Benezet
President
Claremont University Center
Harper-East
Claremont, California

Dear Dr. Benezet:

This is in response to your letter of July 9th. The statement on the place of research in the State Colleges, which you quote from the Donahoe Act, implies that research will be more tolerated than encouraged. I can understand the need to emphasize the priority of instruction at the undergraduate level and the consequent requirement that faculty members give priority to teaching, but at the graduate level, even in the Master's field, the situation is rather different.

While it is unnecessary and probably undesirable to emphasize research at the Master's level in the way one would in Doctoral programs, the Donahoe Act policy offers less support than, in my view, would be appropriate. If the Master's degree candidate is not merely to acquire existing knowledge, but to build at least rudimentary competence in original scholarship, the professors with whom he studies should be practicing scholars in their own right. If this assumption is valid, the original scholarship of professors working at the graduate level should be supported as a matter of institutional policy.

The nub of the problem would appear to be the definition of graduate education which is accepted as the basis for projecting and evaluating the function of your state colleges at that level. If the fifth year of instruction is to be largely similar to the four undergraduate years, the statement is probably satisfactory as it stands. But, if the first year of graduate study is conceived as launching a student upon a career of scholarly productivity, the statement is inadequate. It would seem to me inadequate also if the Master's degree is considered a first professional degree, as in the case of intending teachers. If a teacher is to advance his profession rather than merely practice it, his Master's program should at least orient him toward viewing his work as a source of new knowledge, rather than a job in which he only uses what others have already discovered.

Best wishes in what I know must be a tough assignment. Warm regards.

Sincerely,

John H Fischer

John H. Fischer

JHF/ds

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO SANTA BARBARA · SANTA CRUZ

OFFICE OF THE DEAN
GRADUATE SCHOOL OF EDUCATION
LOS ANGELES, CALIFORNIA 90024

August 13, 1968

Mr. Louis T. Benezet, President
Claremont University Center
Harper-East
Claremont, California 91711

Dear Mr. Benezet:

I regret that I was absent at the time of your inquiry regarding faculty research in the California State Colleges. In view of the fact that it probably is too late for me to be of any use to you, my reply is brief.

The delineation among the institutions set forth in the Master Plan for Higher Education in California appears on the surface to be sound but presents formidable difficulties. Many of us within the University argue that research and teaching go hand in hand, one stimulating the other. It appears to be a contradiction, therefore, to suggest that State College faculty members--who are expected to teach wdl--are not to do research. On the other hand to begin to supply State funds and various kinds of encouragements for research among the State Colleges is to open a Pandora's Box. Until recently--and to some degree still--the situation has been compounded by the expectation that the University of California would not recruit from the State Colleges. Thus, promising young researchers in the State Colleges found it necessary to move into the several private institutions or to move out of the State--and usually the latter proved easier-if they wished to follow a research career. Several of my friends in the State Colleges tell me that some departmental chairmen and deans (perhaps many) actively discourage applications for research grants.

It seems to me that faculty members in the State Colleges should be encouraged to engage in research which is directly related to their teaching functions. This means that the research should be on content, methodology, and program. However, such a statement is as deceptively misleading as the general statement regarding the Master Plan. In some fields, research probably would mean extensive involvements outside of the campus, research assistants, reduced teaching loads, and all of the rest.

Perhaps the only way to get around the matter is by stipulating some very specific conditions surrounding the research enterprise. Perhaps the State Colleges should have a Center for Institutional Research, devoted to decision-oriented research pertaining specifically to pedagogy, curriculum and pupil personnel. The faculty members could have part of their load attributed from time to time to participation in these functions. State funds would be made available for the maintenance of such offices. Then, it seems to me, the research of individual faculty members should be supported entirely from extra-mural funds (which is almost the case within the University of California anyway) but faculty members should not be relieved of teaching loads in order to carry on research. Perhaps a minimum teaching load should be specified so that a faculty member might carry only two courses in a quarter for a year but then would be required to return to full-time teaching for a specified period of years.

The more I begin to go in this direction, the less I like it, because the universities and colleges already are hamstrung by rules and regulations. This, then, results either in additional administrative personnel or an enormous administrative burden for teaching personnel. Nonetheless, I feel that some loosening up of the research requirement is necessary, a loosening up which would emphasize research designed to update and invigorate both programs and the content and methodology of the professor's teaching career. I would hope that research and publication would not become criteria for advancement within the State Colleges.

I doubt that I have helped at all. The problems are enormously complicated. I simply feel that to open up full-scale research in all of the State Colleges as well as in the university system would be a mistake.

Sincerely yours,

John I. Goodlad/jt

John I. Goodlad
Dean

THE UNIVERSITY OF WISCONSIN

FRED HARVEY HARRINGTON, *President*

1700 Van Hise Hall
1220 Linden Drive
Telephone (608) 262-2321

MADISON, WISCONSIN 53706

July 18, 1968

Dear Louis:

The limitation on faculty research in the state colleges has received a much too narrow interpretation by both opponents and advocates. The limitation doesn't mean "no research at all;" neither does it mean the kind of large-scale, expensive, fundamental research carried on by a major university.

State college faculties can conduct several types of research activities that will contribute to their primary mission:

1) Obviously, research in the pedagogical problems unique to each discipline.

2) Documentary studies that will contribute to the literature in each field.

3) Small-project research (e.g., NSF supported) on problems of special interest to the teacher and of special relevance to his courses.

In short, I do think the distinction you cite can be implemented. It is essentially the same as the distinction between a biotron and a biology laboratory or between an accelerator and physics lab.

Cordially,

Fred Harvey Harrington
President

Dr. Louis Bengzet
Office of the President
Harper-East
Claremont University Center
Claremont, California 91711

3

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

OFFICE OF THE PRESIDENT

July 30, 1968

Dear Louis:

Of course I am glad to respond to your letter of July 9. I have been in and out from Tucson but have not taken any vacation yet. I will do this, probably, in October.

The statement in the Donahoe Higher Education Act that the University of California is the state-supported academic agency for research and that the primary function of the state college is that of instruction for undergraduates and the limited graduate work that is included seems to me to be too simple. It of course recognizes that advanced graduate programs and major research endeavors are very expensive; that the amount of professional talent qualified for the direction and leadership of advanced graduate work and research is limited and does not abound in sufficient quantity to serve all of the state colleges and members of the University system; that the number of highly talented students for advanced work and research is limited to the extent that the advanced work is not needed in so many institutions; and that there would be too much duplication if advanced work through the Ph.D. level were carried on in all of the state colleges as well as in the University system. I doubt, though, that the plan of limiting the power to grant doctor's degrees to the principal universities is workable or necessarily desirable.

The Ph.D. is so well established as a professional requirement for college teaching that to insist on emphasizing the research purposes of the degree simply compounds the difficulty in obtaining broadly educated teachers.

As a suggestion, colleges might well grant Ph.D. degrees without foreign language and dissertation, but with equivalent time spent on work preparatory to college teaching. Actually, preparation for college teaching is sadly lacking. There are a great many people who simply seem to commit assault with intent to teach.

I do not mean to imply that preparation in a pedagogical sense is a chief element, or even a very important element. As I look back on my own graduate career, I don't think I gained a great deal from the time spent on the dissertation—and I actually didn't spend anything like as much time on it as many students spent and are still spending on this requirement.

I might add one other point, namely that the most inspiring teachers that I had, both as an undergraduate and as a graduate student, were persons who did research and kept abreast of their fields but never published very much. They were not regarded as great scholars at the time and history has not placed them in this category.

The result of this suggestion would be two types of Ph.D. degrees. State colleges could emphasize the Ph.D. degree that does not require the foreign languages and dissertation. Universities could continue with the more conventional advanced program. Then the university could have the highly specialized, extremely costly research institute in which the graduate students do so much of their work.

I hasten to add that David L. Patrick, who was Professor of English Literature for a good many years and Dean of the Graduate College and is now Coordinator of Research with primary responsibility for administration of sponsored research, takes the position that is stated in this letter. We have discussed this a number of times, and most recently just a day or so ago with your letter before us.

The outcome in California will be interesting. In the meantime, my best personal regards.

Cordially,

Dick

Richard A. Harvill

Dr. Louis T. Benezet
President
Claremont University Center
Claremont, California 91711

RAH:erm

Clark University

WORCESTER, MASSACHUSETTS 01610

OFFICE OF THE PRESIDENT

July 18, 1968

President Louis Benezet
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

In response to your recent letter it would seem to me that the statement contained in the Donahoe Higher Education Act does provide a useful delineation of faculty research function in a state college. If I understand what the Act is trying to say, it is that the primary function of the state colleges is to teach and the major research thrust in the state institutions of California is to be in the University of California. This would imply that the teaching load would be heavier in the state colleges and that highly expensive library collections and laboratory equipment would not be available in the state colleges. On the other hand for those state college faculty members who wish to continue their research it might be well to provide some special opportunities for them to do so. Summer stipends, travel funds for trips to major research libraries, sabbatical leaves are some of the possibilities which come to mind. I would think, however, that these would be for the minority of faculty members in the state colleges and by no means for everybody. In short, the University of California and the state colleges are different types of institutions. Their missions are different, and the relative emphasis or lack of emphasis on research is part of what makes up the difference between these two types of institutions. I repeat that it would seem to be important, however, to offer some encouragement to the minority of faculty members at the state colleges who are capable of pursuing high-level research and who wish to do so. The best of these would, however, probably in the long run move on to major university centers.

Another interpretation might be placed on the Donahoe Act statement that faculty research is authorized to the extent that it is consistent with the primary function of the state colleges. It might be interpreted as suggesting pedagogical research. Certainly there is great need for this. We all know how backward most educational institutions are in developing new ways of teaching. It would seem to be within the spirit of the Donahoe Act that faculty members at the state colleges be encouraged by summer stipends and in other ways to engage in research related to instruction.

I hope that these "off the cuff" remarks may be of some help to you.

With all good wishes.

Sincerely,

Fred

Frederick H. Jackson

FHJ/mw

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

July 15, 1968

Dr. Louis T. Benezet
President
Claremont University Center
Claremont, California 91711

Dear Lou:

The questions you pose in your letter of July 9 are not easy ones. First, this sort of question tends to entangle one in the contending aspirations of the several segments of the State's higher education system. Secondly, the quotations you provided are obviously open to several kinds of interpretation. I am sure that when they were written, the colleges interpreted them in one way while others, who wished to hold down the magnitude of their research, interpreted them in another fashion. Finally, inherently these are not easy questions. But let me try.

To start, it seems to me that if the primary function of the State colleges is the provision of instruction for undergraduate students and graduate students, and if it is intended that this be first-class instruction, then there is no question about the need for the faculty to be involved in research. Surely there is common agreement now that first-quality graduate-level instruction must be associated with research. And to only a slightly lesser extent, this is true for undergraduate instruction too. Not only is an exposure to research beneficial to the students but also there is widespread agreement that involvement in research keeps the faculty more alive and more at the forefront of their fields than is otherwise the case. And this reflects itself in the instruction. The more rapidly developing the field, the more true this probably is. Accordingly, any good graduate-level program--and undergraduate too--must have a significant research effort (in some fields it is intellectual work other than research) related to it. The writers of the quotations you cited must have had this in mind.

If the above is true--as I believe it is--then the only question remaining is "how much research," i.e., in the final sentence you quote, what is the interpretation of "...consistent with the primary function ... and the facilities provided for that function" as distinct from the first statement that the U. of C. is to be "the primary state-supported academic agency for research." This one is more difficult to answer. It's like how much virtue do we need or how pregnant is a little bit pregnant. I can see one distinction--e.g., perhaps the colleges should not develop research institutes or laboratories of which the principal purpose is research--i.e., this sort of research for its own sake should be reserved to the university. On the other hand, if the colleges are to be meaningfully involved, this must be taken into account in terms of teaching assignments, provision of significant time for research and other scholarly activity, provision of adequate facilities for these purposes as well as for instructional uses, financial support for equipment, supplies, graduate student stipends, technical assistance, etc., etc. If these are not provided, the best people (not only from the point of view of research productivity but with respect to quality of instruction as well) will tend to leave and recruitment of high-quality replacements will not be probable. In short, the entire effort will be less than high quality.

The problem is therefore one of facilitating enough research but, at the same time, not permitting it to become the primary purpose. How much this is may be subject to opinion. My own feeling is that a good rule of thumb, if decent graduate programs are to exist, is that faculty should have about half-time for research along with a commensurate amount of the other attributes I have mentioned above. This may vary a bit in different fields but I believe it is a reasonable approximation.

Well, I've written quite a bit and I venture to guess I haven't told you a thing you didn't already know. If I misunderstood what you wanted or if I haven't been appropriately responsive in other ways, let me know and I'll try again.

Best regards.

Sincerely,

Lou

Louis Levin
Associate Director
Institutional Relations

UNIVERSITY OF COLORADO
VICE PRESIDENT FOR ACADEMIC AFFAIRS
BOULDER, COLORADO 80302

July 15, 1968

President Louis Benezet
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

Your letter came just as I am about to go off for two weeks. Consequently I am writing out a draft, with the request that a clear copy be prepared and sent to you in my absence. As you suggest, my reactions are spontaneous--if not unrehearsed.

In general it seems to me that the statement of the Donahoe Act does provide a distinction between the research activities appropriate to the University and those appropriate to the State Colleges. The administration of the policy will not always be easy, and there will be many specific cases in which someone of experience will be obliged to make a judgment of appropriateness; I am sure that some of these judgments will be questioned. However, I know of no other way in which more specific statements might be advantageous--at least as statements of general policy.

There are some rules of thumb that I would apply if I were asked to judge individual research proposals or activities. Among these are:

1. The extent to which the students of the institution are actively participating in the research activities. Substantial student participation helps insure that the activity is appropriate to the institutional program and level of instruction.

2. The general staffing pattern of the activity. If most of the work is carried out by (or requires) paid helpers (technicians, research associates, post-doctoral fellows) it is probably inappropriate for the State Colleges.

3. The bearing of the research on the instructional patterns of the institution. Research on instructional methods, the nature of the institution, the natures of the entering students and graduates, etc., are in my mind appropriate for all institutions, even though they may not meet some of the standards implied above.

4. Whether the research is carried out under the umbrella of a normal department of instruction, or, on the other hand, whether it requires the support of a special "research institute". As a rule, the special institutes will be engaged in research more closely related to doctoral level instruction, or in research not identified with instruction. An example (not employing the designation "institute") is the curatorial and research activities of a university museum.

There is one haggle in the language of the Donahue Act: it speaks of "faculty research" in the State Colleges. I assume that this is intended to be an inclusive term, although it could be read as providing for research activities on a broad scale in the Colleges, provided such activities were not confined to the "Faculty".

In sum, then, I think I know what is intended by the Donahoe Act language. But the decisions on appropriateness in individual cases will be difficult, and should be made by informed and sympathetic persons (who will still undoubtedly make some mistakes). The distinction between the University and the Colleges can, in my opinion, be implemented by good administration. Whether the political problems associated with this administration can be tolerated is an important consideration; however, I plead ignorance of the local tribal customs of California and so avoid doing more than raising the difficulty.

Best regards,

Thurston E. Manning
(a.m.)

Thurston E. Manning
Vice President for
Academic Affairs

TEM:mf

CARNEGIE CORPORATION OF NEW YORK

LLOYD N. MORRISETT
VICE PRESIDENT

July 18, 1968

Mr. Louis T. Benezet
President
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

Your letter of July 9th struck a sympathetic cord with me as the problems of teaching and research in colleges and universities are a particular concern of mine.

The distinction between faculty research that is supportive of the teaching function and research which is more or less unrelated to teaching is a very difficult one to maintain. I doubt that the distinction could be maintained as such because in most cases sound arguments could be advanced either way.

On the other hand I think the motivation behind the Master Plan statement on faculty research in state colleges is laudatory. The intent might better be achieved if two things were to occur in the administration of the institutions in question.

First "research" needs to be more broadly considered than it ordinarily is in our leading universities. Analytical, historical, and critical writing need to be considered as "research" as well as empirical work in the social and natural sciences or original theoretical work in other fields. Frequently it will turn out that analysis, historical scholarship, and criticism will be more supportive of teaching than are original empirical or theoretical research. The process in all cases is likely to help keep the teacher's mind active, but the outcome of one sort of research is much more likely to be directly relevant to teaching.

If research can be conceptualized in this broad manner, then the second thing that might be implemented would be a reward structure based primarily on teaching performance rather than on research. At some institutions the system of rewards based on teaching might be the primary system and in other institutions such as major universities it might exist along side the present reward structure.

In other words I think that if professors were rewarded primarily for their teaching ability and at the same time given opportunity to do research when research is broadly conceived that the intent of the Master Plan can be achieved without having to legalistically apply an arbitrary definition of research to specific cases.

Cordially,

LM:kg

CARLETON COLLEGE
NORTHFIELD, MINNESOTA

THE PRESIDENT

Keene, N. Y. 12942
July 19, 1968

President Louis T. Benezet
Claremont University Center
Harper-East
Claremont, Calif. 91711

Dear Louis:

The Donahoe Higher Education Act's statement on the role of teaching and research in the State Colleges, if interpreted in an intelligent and informed fashion, provides a reasonable place for faculty research. It does not, however, make as clear to the layman as it should the necessary connection between first rate teaching and research, and in the interests of higher education in California I hope the Coordinating Council will be more explicit about that connection.

To my way of thinking one important distinction between the university proper and the college rests on the fact that the university (in your case the University of California) has a double responsibility, to discover truth and to develop new knowledge (research) and to disseminate knowledge and help educate young minds (teaching). The business of the college is teaching. At the same time good teaching will occur, with very rare exceptions, only where there are active, inquiring faculty minds at work exploring in some sense the frontiers of their discipline and willing to present their findings to the critical judgments of their peers. Colleges must encourage research by providing reasonable teaching loads, adequate leaves of absence, library and laboratory facilities within reason - not because these are for the college ends in themselves, but because they are the way faculty keep their minds sharp, fresh and cutting and thus continue to be effective teachers. The institution which neglects research in its broadest sense, and I mean by research scholarship in its best sense, is guaranteeing a mediocre faculty and a second rate education.

In my annual report for 1965-66 I touched obliquely on your concern in a discussion of teaching load. I enclose a copy and refer you to pages 12-14.

I hope all this is of some help. Success to your venture and warm personal regards.

Yours sincerely,

John.

John W. Nason

UNIVERSITY OF CALIFORNIA, LOS ANGELES

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OFFICE OF THE CHANCELLOR
LOS ANGELES, CALIFORNIA 90024

July 17, 1968

President Louis Benezet
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

I am responding to your letter of July 9. Anything I say should, of course, be interpreted on the background of my brief experience in California.

The division of research responsibility within the institutions of the state seems to me a good guideline for future development. It certainly makes sense economically and I believe can be defended educationally. I interpret research to mean creative work in one's own field. This can be related to the instructional function and in one sense all creative work in the field will improve teaching. In this sense, faculty research in the state colleges needs to be supported by regular leaves of absence and some support money for materials, laboratory equipment, etcetera. I do not believe, however, that it is necessary that these support funds make possible research at the doctoral level or beyond. One exception to this statement might be considered: namely, research connected with the instructional process itself. I believe that closer cooperation with the university schools of education might be helpful. We know far too little about the whole process of learning at the university and college level and experimentation and research is desperately needed. The state colleges and our schools of education in cooperation could make real contributions to the development of our knowledge in these fields. Related too is the area of instruction for the disadvantaged, where I think cooperation between the two institutions might be helpful too.

In effect, then, I am concurring with the distinction made in the Donahoe Act but suggesting that faculty research in the state colleges could, in the broadest sense of the term, improve instruction, and that modest funds might make a great difference if tied to a regular leave program and teaching schedules which made some renewal and refreshment of the intellectual equipment of the faculty possible.

Yours sincerely,

Rosemary Park
Vice Chancellor

Allegheny College

MEADVILLE, PENNSYLVANIA 16335

OFFICE OF THE PRESIDENT

July 26, 1968

Dear Louis:

I returned from vacation to find your letter of July 9 asking me to comment on the statement with reference to faculty research contained in the Donahoe Higher Education Act. My reaction to this statement is a little like that I have to Bob Bates' editorials which on occasions seem to make a good point but do not quite indicate how and when the desired goal is to be achieved.

There ought to be colleges where the emphasis is on the undergraduate and where the research carried on should enrich and support the instructional program, and there should be universities where sound research is of primary importance. I just do not see these distinctions as absolute, and I do not believe they can or should be put in statutory form.

I do not know your California situation, but I suspect that some kind of pressure is needed to keep the state colleges from going too far in emulating the universities. I should think that this could be done by your Board of Regents or by some other body but with more flexibility than is possible under a statutory definition.

To answer your question directly, I do not believe that the statutory provision which you have can be implemented, at least in the spirit in which I think it was passed. I would hope, however, that California would strive to see that part of its higher educational facilities are primarily undergraduate in orientatio

With best regards.

Sincerely,

Lawrence L. Pelletier

President Louis T. Benezet
Claremont University Center
Harper-East
Claremont, California 91711

LLP/er

SYRACUSE UNIVERSITY
VICE PRESIDENT FOR ACADEMIC AFFAIRS | SYRACUSE, NEW YORK 13210
TELEPHONE 315 | 476-5541 | EXTENSION 2494

July 26, 1968

President Louis T. Benezet
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

I've been away and my response to your letter of July 9th may reach you too late for your purposes. In any case, the provisions you quote from the Donahoe Higher Education Act strike me negatively as statutory guide lines for research and teaching. They imply too narrow a view of research and ignore the important role research plays in keeping teaching vital. I do not disagree with the designation of the University of California as "the primary state-supported academic agency for research," as long as the language does not preclude leave systems, teaching load relief policies, travel assistance, and the like, which support individual faculty research.

The state colleges should obviously not try to mount great research centers requiring highly sophisticated equipment and complex scientific personnel organizations. At the same time the law should clearly protect individual faculty members who desire to conduct sponsored or unsponsored research without regard to the graduate or undergraduate mission of the college with which he is affiliated. In short, I view research as indispensable to the scholarly tradition.

I am also bothered by the qualified reference in the statute that "Faculty research is authorized to the extent that it is consistent with the primary function of the state colleges and the facilities provided for that function." What does it mean? The statute should assume such consistency. To the extent that it forces some administrator to make the judgement it opens the door to embarrassment and even interference.

Richard L. Means, in an article on research versus teaching in the May 1968 issue of "Liberal Education," catches the essence of my concern very well when he says:

> To understand the struggle to win knowledge, the ground rules of competence, and the problems of validation is to penetrate to the assumptions of knowledge of the sciences, the humanities and the arts. There is a sense in which this kind of fundamental understanding can be won only by doing.

My best to you.

Cordially,

Frank

Frank P. Piskor

FPP:jw
Signed in his absence

UNIVERSITY OF PITTSBURGH

CHANCELLOR OF THE UNIVERSITY

July 29, 1968

Dr. Louis Benezet
President
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

I have received your letter of 9 July. I am of course very happy to share with you my views on the role of faculty research in state colleges, for whatever they may be worth.

I believe that the statement in the Donahoe Higher Education Act on faculty research in the State Colleges is satisfactory except for the word "authorized." This seems to mean "permitted," whereas it should say "encouraged." Certainly some involvement in research ought to be a part of any faculty member's professional life since it will make him a more vital teacher and more likely to be effective in the "provision of instruction for undergraduate students and graduate students." Although faculty members who teach graduate students and serve as models for those students have a particular obligation to exemplify the concern for new knowledge, new insights and new values, undergraduate faculty has a similar responsibility, if for different reasons. I believe that faculty research should be "in," whether at the state colleges or at Berkeley.

The proviso that the research carried on by faculty members in state colleges should be related to instruction makes good sense in view of what is specified as the primary function and objective of those colleges. It seems clear, for example, that a man whose teaching speciality is sixteenth-century English literature ought to focus his research efforts in this field and thus become a more capable teacher in it rather than pursue some other research activity that has no bearing on his classroom responsibilities. The area for research, however, might very well be much broader than the example I used.

As to how to bring this about on a given state college campus, I think it would require a very full and frank dialogue both among the faculty and between the faculty and the administration. Such a discussion should aim at developing complete understanding and agreement on the institutional functions and objectives of the state colleges as set forth in the Donahoe Act, and the central role of the teaching faculty is enabling the college to fulfill its objectives. It should be possible to develop out of such a dialogue a convincing rationale for faculty research that is related to instruction. Given the rewards system among faculty in American higher education today, gaining acceptance of this concept will not be easy. But it is clear that there is no substitute for this kind of intra-faculty dialogue; it is certain that the idea of teaching-oriented research cannot be imposed by either administrative or legislative directive.

I hope that this may be of some assistance to you. I would be very much interested in learning the result of your investigation.

Warmest regards.

Sincerely,

Wesley W. Posvar
Chancellor

WESLEYAN UNIVERSITY
Middletown, Connecticut 06457

Academic Vice President

July 15, 1968

President Louis Benezet
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

My prejudices are such that I am not sure that I can give a useful response to your query of July 9 about the role of faculty research in the California State Colleges. The description of the "primary function" of the State Colleges is clear-cut, but I think that the way in which disciplines are developing and the competition for good faculty will mean that the provision of instruction of high quality for undergraduate students and graduate students through the Master's degree will require considerable support for faculty research in the State Colleges.

Not everybody sees it quite the way I do. On Pages 1001 through 1004 of the October 1967 issue of The American Mathematical Monthly, there is an excellent paper entitled "Alternatives to Research" by D. E. Christie of Bowdoin and J. H. Wells of the University of Kentucky. Even they, however, are not taking a position very far from mine when they write, "There is no substitute for time." In many areas, support for research does not have to take the form of money for equipment or for library materials, so that the implementation of the Donahoe Higher Education Act will really be evaluated in terms of the degree to which teaching loads at the State Colleges approximate those at the University.

Best regards,

Sincerely yours,

Bob

Robert A. Rosenbaum

RAR:GP

THE FORD FOUNDATION
320 EAST 43RD STREET
NEW YORK, NEW YORK 10017

F. CHAMPION WARD
VICE PRESIDENT
DIVISION OF EDUCATION AND RESEARCH

August 22, 1968

Mr. Louis Benezet
President
Claremont University Center
Claremont, California 91711

Dear Louis:

I am sorry to have been so slow in responding to your letter of July 10th, about the role of research at state colleges. I am puzzled by this question and certainly no expert on what actual experience has been since the state college system was established. With that proviso, I will pontificate. It seems to me that the distinction between a teaching faculty and a research faculty is a valid and interesting one. However, I think there is difficulty in drawing the line between these two faculties after the MA. At least, when it is drawn that high, a certain amount of conventional research opportunities would appear to be necessary for at least part of the faculty. However, I would hope that in a teaching faculty, even when it is responsible through the Masters degree, there would be a readiness to look on "research" as including not only some pedagogical and curricular study and planning, but more often further reading and study designed to sharpen and extend the faculty member's grasp of his field and its relation to others, rather than to produce monographs and books on very precise, circumscribed topics. Such refreshment would subserve teaching by refilling the well and widening the catch basin on which it draws.

But I am already lost in metaphor, which is always a sign of vanishing meaning.

With best regards,

Sincerely yours,

F. Champion Ward

WAKE FOREST UNIVERSITY
WINSTON-SALEM, NORTH CAROLINA 27109

Office of the President

July 30, 1968

Dr. Louis Benezet, President
Claremont University Center
Claremont, California 91717

Dear President Benezet:

Louis, I am a poor designer for the California system of higher education. I am certainly in no position to judge whether the state colleges should enjoy faculty research privileges comparable to those claimed by the university people. The distinction between university and college is important, no doubt, to the law. It is decreasingly important to those of us in the liberal arts colleges which have perforce taken on graduate programs, with greater research commitments year by year, in order to hold a strong teaching faculty. I think Wake Forest is one of those schools, only recently styled "university," which have yielded only mildly to the great god Research. But bright young professors do demand our involvement.

It seems to me that the old controversy, research versus teaching, was always, to a large degree, bogus. Research is needed at the kindergarten level, I suppose. "To search again," if I understand the real meaning of the term, requires teachers at every level to reexamine substance and method, lest staleness overtake them in their jobs.

The university of pentagon-style buildings with reactors inside, still needs to set its priorities so that "good teaching" is rewarded. Presumably, a commercial laboratory, like the R. J. Reynolds Research Facility near my own campus, can do a large part of the applied research now corrupting the university's purposes and distorting its budgets -- where the teaching function is regarded as secondary.

In sum, I would question the economy of the university as a research institution and the State College as a teaching center without any research whatever. Since the State universities in California already have a long head start in facilities and financial resources, I assume that the nuclear reactors and the atom-smashers will stay there.

But humanistic research will proceed apace in State Colleges, and if the faculties are any good, official encouragement and sanctions will not be needed to achieve the really worthwhile efforts . I judge that people on State College campuses, no less than those at the more prestigious place, may have something to say about water and air pollution, mob violence, urban rot, and the psyche of the American Indian.

I wish you and Governor Reagan well in this high enterprise.

Faithfully yours,

Jim

James Ralph Scales
President

JRS:d

Sorry, this was delayed by my long absence from the campus, then harried in a frenzy of dictation. Would you accept the unrevised version?

THE GRADUATE SCHOOL THE UNIVERSITY OF TEXAS
THE DEAN AUSTIN, TEXAS 78712

August 2, 1968

Dr. Louis Benezet
President
Claremont University Center
Harper-East
Claremont, California 91711

Dear Louis:

I should have answered your letter long ago, but I have been waiting for some minor surgery to heal. The question with which you are concerned is not a new one. Some years ago, I made a very careful study of attitudes at Berkeley and UCLA as contrasted with those at two of the state colleges as they pertained, among other things, to the research function. I came away convinced that this particular portion of the Donahoe Higher Education Act is a mistake in the absence of a carefully evolved plan to provide for the faculty research function in the state colleges. To give you a precise example, I spent a whole day examining the manner in which research had been bootlegged into one of the state colleges. That in itself would not be so bad, but it turned out, in the absence of proper facilities, to be grade B minus or less research, and the official dampening of it was a major factor in frustrating the faculty members.

At the time I thought I saw two ways out of the dilemma. One, much closer cooperation between university components and specific state colleges in some sort of a plan which would make better facilities and the interest of the university group available for the further development of the state college faculties. Geography is, of course, a difficult factor here as is a status concept that tends to separate the university faculties and the college faculties.

The other possibility, and to me a somewhat more attractive one, is that the state colleges might well take on certain sorts of studies which either did not require the expensive facilities and laboratories around which the universities are centered or which actually fall somewhere between what is considered fundamental research and the technical and social applications of this research. This is an area to which the universities are devoting too little time and to which, in most instances, they cannot devote more time without damaging fundamental research enterprise. It is an area of increasing concern if we are going to apply such rationality as we still have left to the resolution of any of the problems with which we are faced.

I predicated these remarks on the assumption that faculty research of something more advanced than the sort that can lead to papers at local meetings is, in fact, essential to keep an individual viable for any substantial portion of a normal teaching life. I do not think the statement in the Donahoe Act can be implemented as it stands. I do think there is an increasing important sort of research role for the non-university faculty members. Until it is recognized, these faculty members are going to look on themselves as second rank individuals, and if they look on themselves in this light, this is what they will be. A few places in California have begun working out some of this in a pattern that is not clearly recognized and so far as I could see not sufficiently encouraged. San Diego State College has some extremely useful coordinated activities with a number of local problem-solving enterprises and occasionally an interesting relationship of another sort with General Atomic and some of the other technical developments in the area.

Finally, let me point out that we are actually doing pretty well in a good part of the fundamental research area, and I can find few good reasons for expending this sort of thing into institutions like the state colleges. We are doing very poorly in the utilization of our research findings. A great part of the problem involved is the absence of articulate middle men between, for example, the nuclear physicists and the public. I am an unwilling prophet, but I see a great unfulfilled need here. It is likely that it could be filled best by people of reasonable education capable of communicating to coming generations.

Cordially yours,

Gordon

W. Gordon Whaley

WGW:mcg

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